DPS Telecom

"Your Partners In Network Alarm Monitoring"

# NetGuardian-16S

## USER MANUAL

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**December 8, 2006** **D-OC-UM06C.08103** **Firmware Version 1.0**

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# 1 NetGuardian-16S Overview

***Fig. 1.1.*** *NetGuardian-16S: High capacity and versatile capabilities make it a powerhouse RTU*

**NetGuardian-16S — Proven Hardware and Software, New and Expanded Capabilities**
The NetGuardian-16S is a multifunction, high capacity, NEBS-certified, LAN-based, SNMP/DCPx remote telemetry unit. The NetGuardian-16S is based on the proven hardware and software capabilities of DPS Telecom's popular NetGuardian-16S 832A RTU, but the NetGuardian-16S adds greatly expanded functionality.

The NetGuardian-16S incorporates many functions that previously required several separate units, while occupying only 1 RU on any standard 19" or 23" equipment rack, freeing valuable rack space for revenue-generating equipment.

The NetGuardian-16S features:

- Built-in Web Interface: monitor your alarms from any computer, without an alarm master
- Two separate IP addresses for security: one IP address for private company LAN access, and a second IP address for public Internet access
- Voice Call Out for reporting alarms via telephone call
- Integrated Building Status Unit for local alarm visibility
- **32 reversible discrete alarm inputs** (expandable to 176 alarm points by adding NetGuardian-16S DX Expansion Units)
- **16 reach-through serial ports** with terminal server functionality for connecting multiple concurrent users via Telnet over LAN to telecom switches, servers, radios, PBXs and other equipment
- **8 programmable NO/NC control relays** (expandable to 32 by adding NetGuardian-16S DX Expansion Units)
- **32 ping alarms**
- Automatic 24/7 email and pager alarm notification
- Alarm reporting to any SNMP manager or the T/Mon NOC Alarm Monitoring System
- Backup dial-up alarm reporting
- Dual –48 VDC power inputs
- Free lifetime firmware updates, installed via LAN or serial connection
- NEBS Level 3 compliance

**Dual IP address security model for safe public access**
For enhanced security, the NetGuardian-16S has two separate IP addresses on separate subnets. This allows you to safely connect the NetGuardian-16S to both your private company LAN and the public Internet. Since the public IP address is on a separate subnet, users from the outside cannot connect to your company LAN.

**Connect via LAN to telecom switches, servers, radios and more**
The NetGuardian-16S's 16 reach-through serial ports provide LAN-based terminal server access to up to 16 serial devices Multiple users can simultaneously connect to the NetGuardian-16S via Telnet over LAN to connect and control telecom switches, servers, radios, multiplexers, PBXs and many other types of remote site equipment.

**NEBS-compliant for guaranteed reliability**
The NetGuardian-16S is compliant with NEBS Level 3 electrical, environmental and safety standards. NEBS-certified NetGuardian-16S models are available as an option.

# 2 Shipping List

Please make sure all of the following items are included with your NetGuardian-16S. If parts are missing, or if you ever need to order new parts, please refer to the part numbers listed and call DPS Telecom at **1-800-622-3314**.

**NetGuardian-16S**
**D-PK-NETGD-12001**

**NetGuardian-16S User Manual**
**D-OC-UM06C.08103**

**NetGuardian-16S Resource CD**
**(includes manuals, MIBs, and software)**

**DB9M-DB9F Download Cable 6 ft.**
**D-PR-045-10-A-04**

**Two Ethernet Cables 14 ft.**
**D-PR-923-10A-14**

**Telephone Cable 6 ft.**
**D-PR-045-10A-01**

**23" Rack Ears**

**19" Rack Ears**

**Eight 3/8" Ear Screws**

**Four Standard Rack Screws**

**Four Metric Rack Screws**

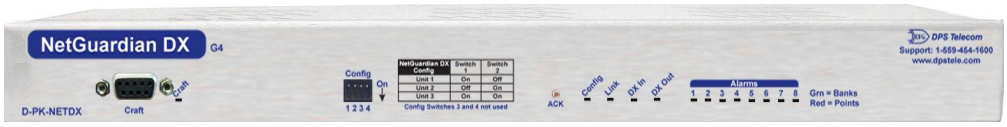
**Two 3/4-Amp GMT Fuse**

**Two Power Connector Plugs**

**Pads**

# 3 Optional Accessories

Extend the capabilities of your NetGuardian-16S with these optional hardware accessories. To order or for more information, call DPS Telecom at **1-800-622-3314**.




**NetGuardian Expansion (NetGuardian DX G4)**
**D-PK-NETDX-12022.00001**
The NetGuardian Expansion G4 provides an additional 48 discrete and 8 analog alarm points. Up to three NetGuardian Expansions can be daisy-chained off one NetGuardian-16S, providing a total of 176 discrete and 32 analog alarm points.

**Building Status Unit (BSU)**
**D-PK-BSU02-12001**
The Building Status Unit provides auxiliary local enunciation of alarms. The BSU features a single large visual indicator for local alerts. Alarms may be acknowledged locally on the BSU, which will in turn acknowledge the alarm in the NetGuardian-16S. Sound level of the audible speaker can be adjusted with the volume control.

# 4 Specifications

| | |
|---|---|
| **Discrete Alarm Inputs:** | 32 (reversible; expandable to 80, 138 or 176 alarm points) |
| **Control Relays:** | 8 Form C (expandable to 16, 24 or 32 control relays) |
| **Maximum Voltage:** | 60 VDC/120 VAC |
| **Maximum Current:** | 1 Amp, AC/DC |
| **Protocols:** | SNMP<br>DCPx, (T/Mon NOC reporting) |
| **Interfaces:** | 16 RJ45 RS-232 reach-through serial ports (1200 to 115,200 baud)<br>2 50-pin connectors (discrete alarm inputs and control relay outputs)<br>2 RJ45 10BaseT Ethernet ports<br>1 RJ45 NetGuardian-16S Expansion port<br>1 RJ11 telco jack<br>2 DB9 front panel craft ports |
| **Dimensions:** | 1.75" H x 8" W x 6" D (4.5 cm x 20.3 cm x 15.2 cm) |
| **Mounting:** | 19" or 23" rack |
| **Power Inputs:** | Dual –48 VDC (–40 to –70 VDC) |
| **Current Draw:** | 200 mA (350 mA at power up) |
| **Fuse:** | 3/4 Amp GMT |
| **Modem:** | 33.6K internal |
| **Visual Interface:** | LCD display<br>3 Critical-Major-Minor alarm status lights<br>30 bicolor LEDs<br>7 unicolor LEDs |
| **Audible Notification:** | Alarm speaker |
| **Unit Controls:** | 4 LCD menu control buttons |
| **Operating Temperature:** | 32°–140° F (0°–60° C) |
| **Operating Humidity:** | 0%–95% noncondensing |

# 5 Installation

## 5.1 Tools Needed

To install the NetGuardian-16S, you'll need the following tools:

**Phillips No. 2 Screwdriver**

**Small Standard No. 2 Screwdriver**

**PC with Edit16S software**

## 5.2 Mounting

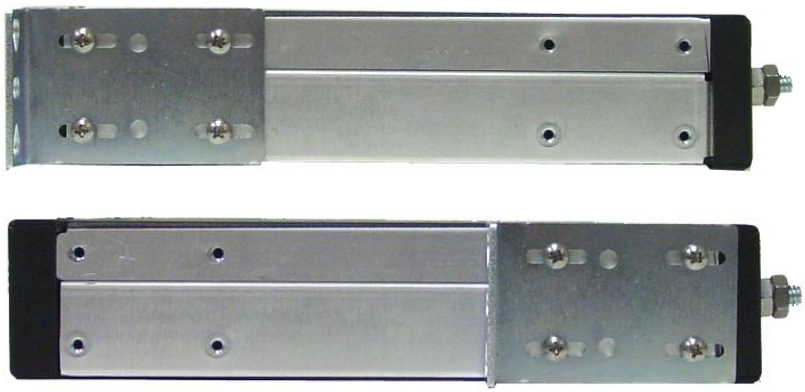


***Fig. 5.2.1.*** *The NetGuardian-16S can be flush or rear-mounted*

The NetGuardian-16S mounts in a 19" rack or a 23" rack using the provided rack ears for each size. Two rack ear locations are provided. Attach the appropriate rack ears in the flush-mount or rear-mount locations shown in Figure 5.2.1.

**Note:** Rack ears can be rotated 90° for wall mounting or 180º for other mounting options (not shown).

## 5.3 Power Connection

***Fig. 5.3.1.*** *Power connectors and fuse.*

The NetGuardian-16S has two screw terminal barrier plug power connectors, located on the left side of the back panel. (See Figure 5.3.1.)

**Before you connect a power supply to the NetGuardian-16S, test the voltage of your power supply:**

- Connect the black common lead of a voltmeter to the ground terminal of the battery, and connect the red lead of the voltmeter to the battery's –48 VDC terminal. The voltmeter should read **between –43 and –53 VDC**. If the reading is outside this range, test the power supply.

**To connect the NetGuardian-16S to a power supply, follow these steps:**

1. Remove the fuse from the back panel of the NetGuardian-16S. **Do not reinsert the fuse until all connections to the unit have been made.**
2. Remove the power connector plug from Power Connector A. Note that the plug can be inserted into the power connector only one way — this ensures that the barrier plug can only be reinserted with the correct polarity. Note that the **–48V terminal is on the left** and the **GND terminal is on the right.**
3. Insert a **battery ground** into the power connector plug's **right terminal** and tighten the screw; then insert a **–48 VDC line** to the plug's **left terminal** and tighten its screw.
4. Push the power connector plug firmly back into the power connector. If the power feed is connected correctly, the LED by the connector will light **GREEN.** If the polarity of the power feed is reversed, the LED by the power connector will light **RED.**
5. Repeat Steps 2–4 for Power Connector B.
6. Reinsert the fuse to power the NetGuardian-16S. The front panel LEDs will flash **RED** and **GREEN.**

## 5.4 LAN Connection

***Fig. 5.4.1.*** *Ethernet ports*

For enhanced security, the NetGuardian-16S has two 10BaseT Ethernet ports. Each port has its own separate IP address and subnet, so you can safely connect one port to your private company LAN and the other to the public Internet.

Connect the **Private** Ethernet port to the company LAN.

Connect the **Public** Ethernet port to the Internet.

By default, outbound data traffic from the NetGuardian-16S will be sent over the Public Ethernet port. Only outbound data that is specifically directed for the company LAN will be sent over the Private Ethernet port.

Both ports are standard RJ45 ports that take standard RJ45 Ethernet cables. If the IP connection is OK, the LNK LED will light **SOLID GREEN** when the cable is connected.

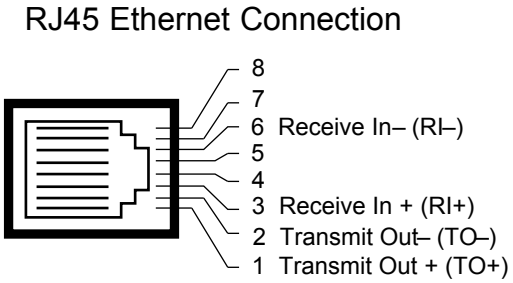



***Fig. 5.4.2*** *Ethernet port pinout*

The pinout for the Ethernet ports is shown in Figure 5.4.2, above.

## 5.5 Telco Connection

***Fig. 5.5.1.*** *Telco jack*

The rear panel telco jack (see Figure 5.5.1) connects the NetGuardian-16S internal modem to a standard phone line for dial-up access and pager alarm notification.

## 5.6 Alarm and Control Relay Connections

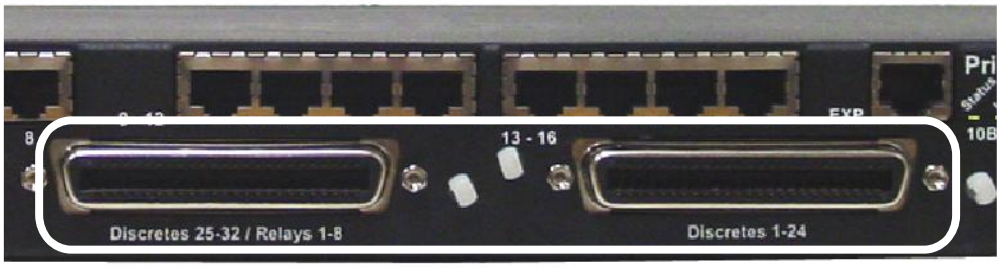



***Fig. 5.6.1.*** *Alarm and control relay connectors*

The NetGuardian-16S's discrete alarm inputs and control relay outputs are connected through the two 50-pin connectors labeled "Discretes 1–24" and "Discretes 25–32/Relays 1–8" on the back panel. (See Figure 5.6.1.)

### 5.6.1 Alarm and Control Relay Connector Pinout Table

| Discretes 1–25 | | | | | |
|---|---|---|---|---|---|
| | RTN | ALM | | RTN | ALM |
| **ALM 1** | 1 | 26 | **ALM 13** | 13 | 38 |
| **ALM 2** | 2 | 27 | **ALM 14** | 14 | 39 |
| **ALM 3** | 3 | 28 | **ALM 15** | 15 | 40 |
| **ALM 4** | 4 | 29 | **ALM 16** | 16 | 41 |
| **ALM 5** | 5 | 30 | **ALM 17** | 17 | 42 |
| **ALM 6** | 6 | 31 | **ALM 18** | 18 | 43 |
| **ALM 7** | 7 | 32 | **ALM 19** | 19 | 44 |
| **ALM 8** | 8 | 33 | **ALM 20** | 20 | 45 |
| **ALM 9** | 9 | 34 | **ALM 21** | 21 | 46 |
| **ALM 10** | 10 | 35 | **ALM 22** | 22 | 47 |
| **ALM 11** | 11 | 36 | **ALM 23** | 23 | 48 |
| **ALM 12** | 12 | 37 | **ALM 24** | 24 | 49 |
| | | | **GND** | 25 | 50 |

| Discretes 25–32 | | |
|---|---|---|
| | RTN | ALM |
| **ALM 25** | 1 | 26 |
| **ALM 26** | 2 | 27 |
| **ALM 27** | 3 | 28 |
| **ALM 28** | 4 | 29 |
| **ALM 29** | 5 | 30 |
| **ALM 30** | 6 | 31 |
| **ALM 31** | 7 | 32 |
| **ALM 32** | 8 | 33 |

| Control Relays 1–8 | | |
|---|---|---|
| | NO/NC | CO |
| **CTRL 1** | 9 | 34 |
| **CTRL 2** | 10 | 35 |
| **CTRL 3** | 11 | 36 |
| **CTRL 4** | 12 | 37 |
| **CTRL 5** | 13 | 38 |
| **CTRL 6** | 14 | 39 |
| **CTRL 7** | 15 | 40 |
| **CTRL 8** | 16 | 41 |
| **FUSE** | 17 | 42 |
| **GND** | 25 | 50 |

***Table 5.6.1.A.*** *Alarm and control relay connector pinout*

Table 5.6.1.A, above, shows the pinouts for the 50-pin connectors "Discretes 1–24" and "Discretes 25–32/Relays 1–8."

Note that the NetGuardian-16S's control relays can be set for either Normally Open or Normally Closed operation. By factory default, all control relays are set to Normally Open. You can reset all relays for Normally Closed operation at the hardware level by resetting a jumper on the NetGuardian-16S circuit board.

For instructions on resetting control relays for Normally Closed operation, see Section 5.10, "Jumper Options — Switch Control Relays from Normally Open to Normally Closed."

### 5.6.2 Discretes 1–24 Connector Pinout Diagram

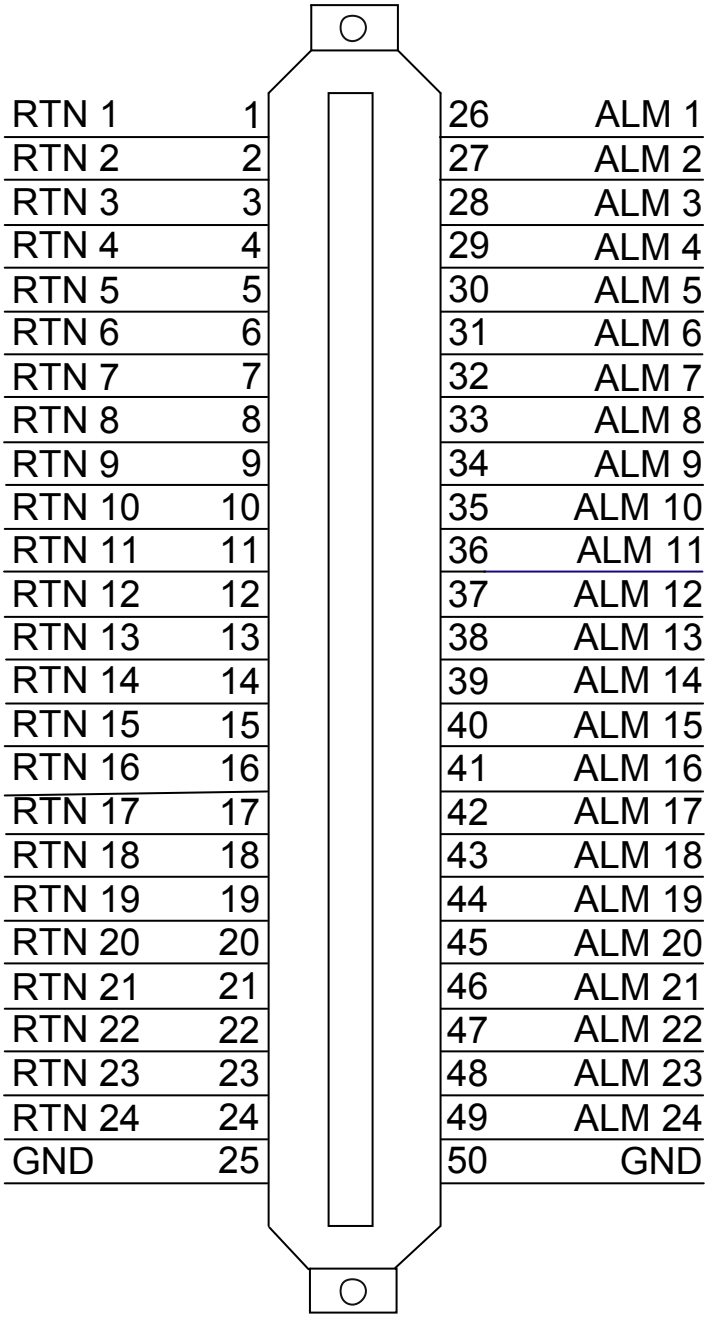



***Fig. 4.6.2.1.*** *Pinout Diagram for Discretes 1–24 connector*

### 5.6.3 Discretes 25–32/Relays 1–8 Connector Pinout Diagram

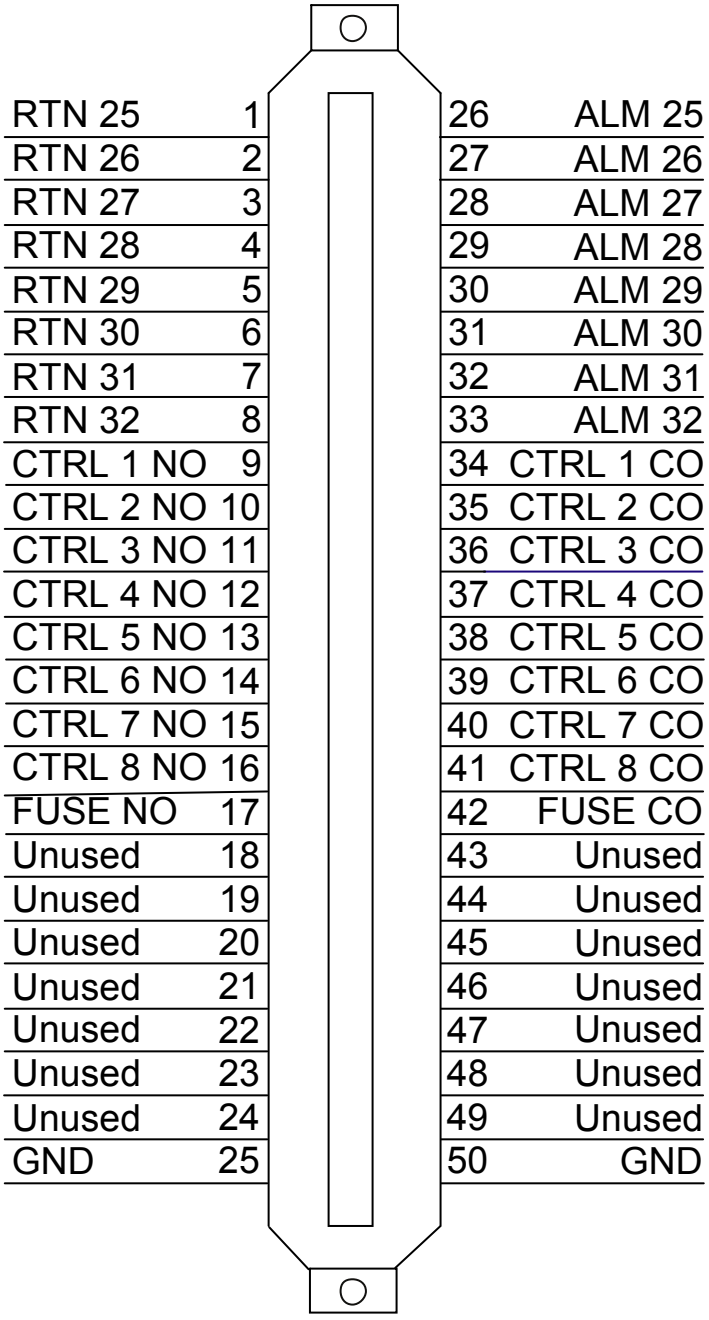



***Fig. 4.6.3.1.*** *Pinout Diagram for Discretes 25–32/Relays 1–8 connector*

## 5.7 Data Ports

***Fig. 5.7.1.*** *Data ports 1–16*

The NetGuardian-16S's 16 data ports provide reach-through terminal server functionality for connecting multiple simultaneous users to external equipment via Telnet over LAN. Each port can function as a proxy connection to an external device, a craft port, a channel port, a TCP or UDP reach-through port. The NetGuardian-16S can support simultaneous proxy connections for up to five users.

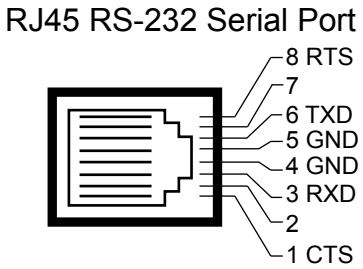



***Fig. 5.7.2*** *Data port pinout*

The pinout for Data Ports 1–16 is shown in Figure 5.7.2, above.

## 5.8 NetGuardian Expansion Port

***Fig. 5.8.1.*** *NetGuardian-16S Expansion port*

The EXP port (see Figure 5.8.1) connects the NetGuardian-16S to a NetGuardian-16S DX Expansion Unit. Up to three NetGuardian-16S DX Expansion Units can be daisy-chained from the NetGuardian-16S. Each NetGuardian-16S DX adds 48 discrete alarm points, or 48 discrete alarms and 8 control relays, to the NetGuardian-16S, for configurations of:

- 1 NetGuardian-16S DX Expansion Unit: 80 discrete alarms and (optional) 16 control relays
- 2 NetGuardian-16S DX Expansion Units: 128 discrete alarms and (optional) 24 control relays
- 3 NetGuardian-16S DX Expansion Units: 176 discrete alarms and (optional) 32 control relays

To order NetGuardian-16S DX Expansion units, call DPS Telecom at **1-800-622-3314**.

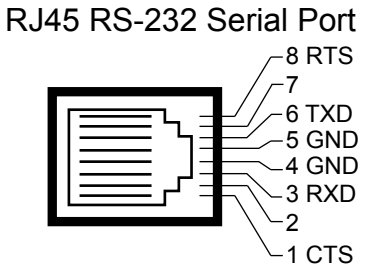



***Fig. 5.8.2*** *NetGuardian-16S expansion port pinout*

The pinout for the NetGuardian-16S expansion port is shown in Figure 5.8.2, above.

## 5.9 Craft Ports

***Fig. 5.9.1.*** *Craft ports*

The NetGuardian-16S has two craft ports, one for each of the unit's two internal circuit boards.

The upper craft port is used for : 1) connecting a PC running the Edit16S configuration software via a COM port connection; 2) accessing the NetGuardian-16S TTY configuration interface; and 3) loading firmware updates to the upper circuit board.

The lower craft port is used for loading firmware updates to the lower circuit board.

## 5.10 Jumper Options — Switch Control Relays from Normally Open to Normally Closed

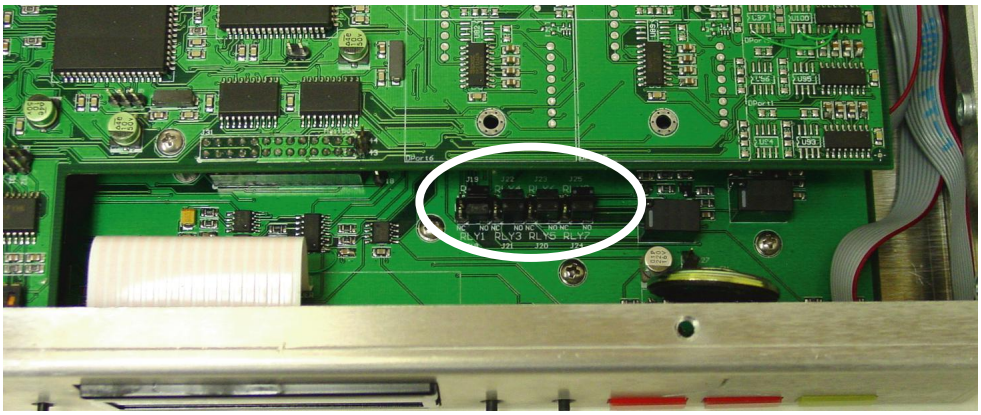


***Fig. 5.10.1.*** *The control relay jumpers are accessible through a notch in the upper circuit board, on the front right corner of the unit*

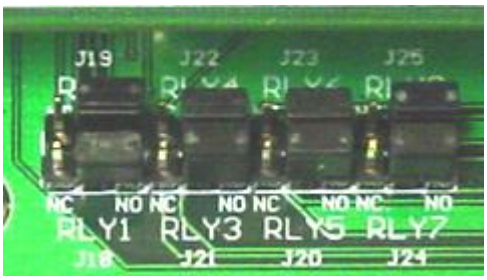



***Fig. 5.10.2.*** *Detail view showing how the jumpers are labeled on the circuit board*

By factory default, the NetGuardian-16S's eight control relays are configured for Normally Open operation. You can reconfigure the control relays for Normally Closed operation by resetting jumpers on the NetGuardian-16S circuit board. Each control relay can be individually reconfigured by setting the jumpers.

To open the unit and expose the circuit board, remove the screws from the top of the NetGuardian-16S and lift the top cover off. The control relay jumpers are on the lower circuit board, on the front right of the unit. The upper circuit board is cut to allow access to the adjustable jumpers, as shown in Figure 5.10.1, above. Each jumper has a label etched on the circuit board that shows which control relay it corresponds to, as shown in Figure 5.10.2.

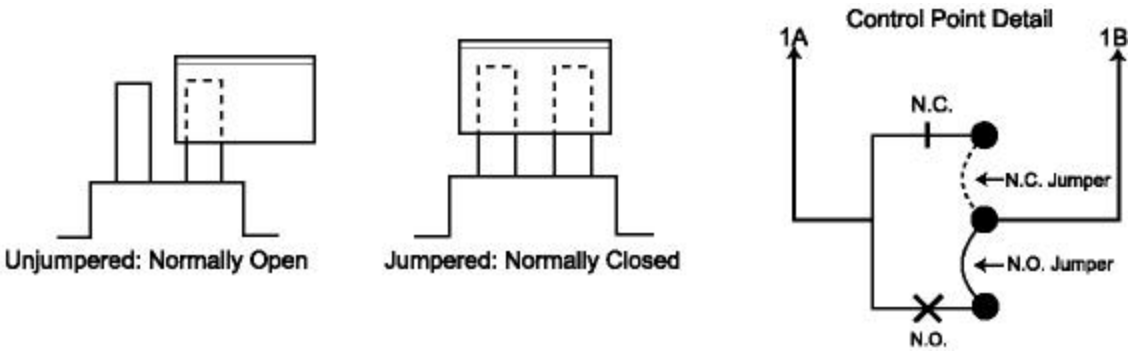



***Fig. 5.10.3.*** *Jumper settings for configuring the control relays*

To switch a control relay to Normally Closed operation, place its corresponding jumper in the closed position, as shown in Figure 5.10.3.

# 6 Building Status Unit

***Fig. 6.1.*** *Integrated Building Status Unit alarm status lights, speaker and Ack/+ button*

The NetGuardian-16S incorporates an integrated Building Status Unit (BSU) that provides local notification of selected alarms. The Building Status Unit panel consists of the three Critical-Major-Minor lights on the right front panel, plus the alarm speaker.

When an alarm occurs, the BSU alarm status lights will show the alarm's severity (see Figure 6.1, above), and the alarm speaker will emit a continuous tone. To silence the speaker, press the Ack/+ button.

(**Note:** Audible alarms from the BSU cannot be silenced by the Sound off command on the LCD Command Menu. For details on the Sound off command, see Section 8.2.1, "Sound off.")

The BSU operates in two modes: **Standard Mode** and **Standalone Mode**.

## 6.1 Standard Mode

In **Standard Mode**, the BSU is controlled by the CopperCom CopperController. The CopperController's configuration determines which alarms will trigger a BSU notification. If a selected alarm occurs, the CopperController will issue a Sound Alarm command to the BSU (and any external Building Status units connected to the NetGuardian-16S). Pressing the Ack/+ button on the NetGuardian-16S or the Ack button on the CopperController sends an acknowledgment signal to the CopperController, and the CopperController then sends a Silence Alarm command to the BSU (and any external BSUs).

## 6.2 Standalone Mode

If the NetGuardian-16S loses its connection to the CopperController, the BSU will enter **Standalone Mode**. In Standalone Mode, the NetGuardian-16S's internal configuration determines which alarms will trigger a BSU notification. If a selected alarm occurs, the NetGuardian-16S will trigger the BSU alarm and send a Sound Alarm command to any external BSUs. Pressing the Ack/+ will silence the alarm speaker directly, and send an Silence Alarm command to any external BSUs.

The NetGuardian-16S determines whether to put the BSU in Standalone Mode by pinging the CopperController. The NetGuardian-16S will put the BSU in Standalone Mode only if it does not receive a ping response from the CopperController.

If the BSU enters Standalone Mode the BSU SM LED will light **SOLID RED** and the NetGuardian-16S will declare a Critical alarm.

In Standalone Mode, the NetGuardian-16S determines which alarms will trigger a BSU notification, and the alarm severity level of the BSU notification, by referring to which alarms have been assigned to Alarm Point Groups 6, 7 and 8 by the system administrator.

Group 6 = BSU Critical

Group 7 = BSU Major

Group 8 = BSU Minor

Alarm Point Group assignments can only be configured by the system administrator. For more information on Alarm Point Groups, see Section 12.5.1, "Alarm Summary."

# 7 Voice Call Out

The NetGuardian-16S features Voice Call Out, which provides alarm reporting via telephone call. The Voice Call Out function will call up to 10 user-defined contact phone numbers to announce Critical and Major alarms with up to 16 dialogs. For a reference to possible Voice Call Out dialogs, see Section 13.4, "Voice Call Out Default Dialogs," in the Reference section.

Voice Call Out is controlled by the CopperCom CopperController in Standard Mode and by the NetGuardian-16S in Standalone Mode.

Voice Call Out is available only for Critical and Major alarms. No Major alarm can be added to the Voice Call Out queue until all Critical alarms are acknowledged. When a Critical alarm occurs, all pending Major alarms will be removed from the Voice Call Out queue.

The contacts for Voice Call Out are defined in the user-configurable Call List. Each contact can be configured to receive only Critical alarm calls, Major alarm calls, or both Critical and Major alarm calls. For instructions on configuring the Call List, see Section 12.6.1, "Call List."

You can also dial in to the NetGuardian-16S and receive a voice update on current alarm status. For some example dial-in dialogs, see Section 13.4, "Default Voice Call Out Dialogs," in the Reference section.

## 7.1 Voice Call Out Sequence of Operations

1. In Standard Mode, Voice Call Out is initiated when the CopperCom CopperController sends an SNMP SET command. In Standalone Mode, Voice Call Out is initiated when an alarm occurs that has been assigned to Group 6 - BSU Critical or Group 7 - BSU Major by the system administrator.
2. If the modem is busy with data traffic, Voice Call Out is paused until the modem is clear.
3. If and when the modem is clear, Voice Call Out is paused for the **Call Qual Time** period set by the system administrator.
4. If the alarm that triggered Voice Call Out clears during the **Call Qual Time**, Voice Call Out will be canceled. (If the alarm clears during the call, Voice Call Out will play the message "Alarm Cleared" and hang up.)
5. Critical call outs always supersede Major call outs. If a Major call out is in progress when a Critical alarm occurs, the Major call out will be canceled. (If a Major call out is terminated during a call, the NetGuardian-16S will play the message "Critical abort" and hang up.)
6. When Voice Call Out is initiated, the NetGuardian-16S will dial the first number listed on the Call List for the alarm's severity level.
7. The NetGuardian-16S will play the dialog determined by the CopperController's SNMP SET command. If the SET command does not specify an alarm dialog, the NetGuardian-16S will play the dialog selected for this contact in the Call List.
8. The dialog will be repeated up as many times as specified in the Repeat Count setting. There will be a pause after each repetition to allow the user to enter the DTMF acknowledge code.
9. The user can interrupt the dialog at any time by pressing the Star (*) key. The user can then enter the DTMF Acknowledge Code.
10. If the user makes a mistake entering the acknowledge code, he or she can clear the entry by pressing the Star (*) key.
11. If the user enters the correct code, the notification sequence will end.
12. If the call remains unacknowledged after a user-defined time period, the NetGuardian-16S will call the next contact listed in the Call List.
13. If the alarm clears during the call, the NetGuardian-16S will play the message "Alarm Cleared" and hang up. Critical clears will not cancel a Major call out, and Major clears will not cancel Critical call outs. Major call outs (but **NOT** Critical call outs) can also be aborted by pressing the BSU Ack button.
14. The notification sequence will continue until the alarm is acknowledged or the NetGuardian-16S has attempted to reach every contact on the Call List. A system alarm will be declared if no contact successfully acknowledged the alarm.

# 8 LCD Display

***Fig. 8.1.*** *NetGuardian-16S LCD showing the Standard Prompt*

The front panel LCD displays the current alarm and control status and provides a command menu for controlling the NetGuardian-16S's basic functions.

**Using the LCD command menu**
The four buttons surrounding the front panel LCD are used to access the LCD Command Menu. To access the menu, press the Menu button. To scroll the menu, use the Ack/+ and – buttons. To select a menu command, press the Sel (Select) button.

**Standard Prompt**
When no Command Menu item is selected and no alarms or relays are active, the LCD displays the firmware version and the standard prompt, `Press MENU for front panel options.`

**Controlling Display Speed**
The scroll speed can be temporarily increased by pressing and holding the + button while the message is active.

## 8.1 Alarm and Control Status Messages

If an alarm or control relay is active, the LCD will display the following messages to indicate alarm and control status:

| | |
|---|---|
| `Discrete Alarms:` | If there are any standing discrete alarms, the display will read "Discrete Alarms:", followed by the user-defined descriptions of the standing alarm points. |
| `Relays:` | If there are any latched relays, the display will read "Relays:", followed by the user-defined descriptions of the latched relays. |
| `Ping Alarms:` | If any ping targets have failed to respond within the specified time, the display will read "Ping Alarms:", followed by the user-defined descriptions of the ping targets. |

## 8.2 LCD Command Menu

***Fig. 8.2.1.*** *LCD display, showing the Standard Prompt*

The LCD Command Menu provides commands for controlling some of the NetGuardian-16S's basic functions: temporarily silencing the alarm speaker, rebooting the unit, and running the TTY configuration utility.

When no Command Menu item is selected and no alarms or relays are active, the LCD displays the firmware version and the Standard Prompt, `Press MENU for front panel options.` (See Figure 8.2.1, above.)

To access the Command Menu, press the Menu button.

### 8.2.1 Sound off

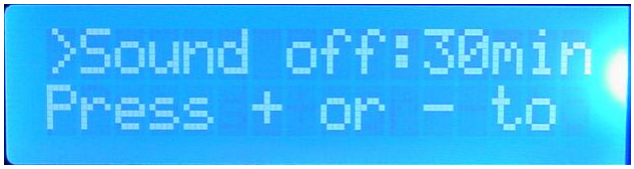



***Fig. 8.2.1.1.*** *Sound Off command*

**Sound off**
The Sound off command suppresses sounds from the alarm speaker for a user-defined period of 10, 20, or 30 minutes. (**Note:** The Sound off command setting **does not** silence audible alarms from the integrated Building Status Unit. For details on the integrated BSU, see Section 6, "Building Status Unit.")

**To scroll to the next menu command,** press the – button.

**To change the Sound off setting,** press Sel to select the command. The arrow cursor (>) will move to the right of the colon (:) in `Sound off:` to indicate that the command submenu is selected. Press the Ack/+ and – buttons to scroll through the Sound off time period options. Select 0 minutes to allow all sounds. When the time period you want is displayed, press Sel to make your selection.

**To exit the Command Menu** without changing the Sound off setting, press Menu.

### 8.2.2 Reboot

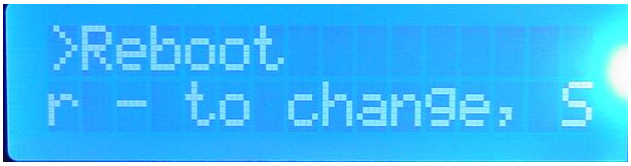



***Fig. 8.2.2.1.*** *Reboot command*

**Reboot**
The Reboot command reboots the NetGuardian-16S.

**To scroll to the next menu command,** press the – button.

**To reboot the NetGuardian-16S,** press Sel. The LCD will briefly display the message `Rebooting ...`, and the normal boot sequence will begin.

**To exit the Command Menu** without rebooting, press Menu.

### 8.2.3 Run Config

***Fig. 8.2.3.1.*** *Run Config command*

**Run Config**
The Run Config command forces the TTY configuration interface to run over the upper craft port at 9600 baud.

**To scroll to the next menu command,** press the – button.

**To run the TTY configuration utility,** press Sel.

**To exit the Command Menu** without running the TTY interface, press Menu.

### 8.2.4 Contrast

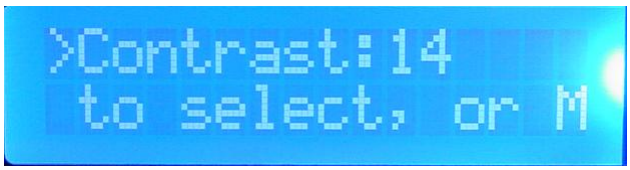



***Fig. 8.2.4.1.*** *Contrast command*

**Contrast**
The **Contrast** command provides controls for adjusting the contrast of the LCD.

**To scroll to the next menu command,** press the – button.

**To adjust the contrast,** press Sel to select the command. The arrow cursor (>) will move to the right of the colon (:) in `Contrast:` to indicate that the command submenu is selected. Press the Ack/+ or – button until you're satisfied with the contrast setting, then press Sel to make your selection.

**To exit** the Command Menu and **revert to the default contrast setting**, press Menu.

# 9 Alarm Speaker

The NetGuardian-16S's alarm speaker emits distinctive tones for three different circumstances:

1. **If the integrated Building Status Unit alarm sounds,** the speaker will emit a **continuous tone.** If the BSU is in Standard Mode, the sound will continue until the CopperCom CopperController issues a Silence Alarm command. To request a Silence Alarm command, press the Ack/+ button. If the BSU is in Standalone Mode, pressing the Ack/+ button will silence the speaker immediately.
2. **If there is an Ethernet connection failure,** the speaker will emit a **high-low warbling tone.** Press any front panel button to silence the speaker.
3. **If a "reportable" discrete alarm occurs** (that is, an alarm that is configured to trigger an SNMP Trap or pager notification), the speaker will emit an **intermittent beep.** Press any front panel button to silence the speaker. If you do not silence the speaker, the beep will continue for a few seconds.. Silencing the speaker will allow the next alarm, if any, to sound.

The Sound off command on the LCD Command Menu (see Section 8.2.1, "Sound off") will suppress sounds from Ethernet connection failures and discrete alarms, but will not prevent BSU alarms from sounding.

# 10 Front Panel LEDs

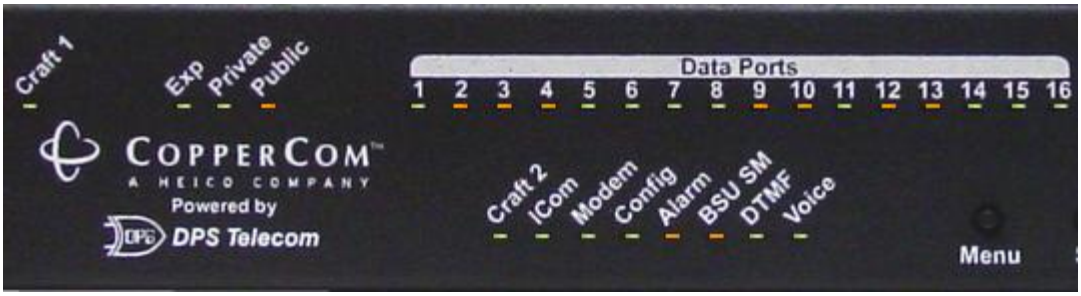



***Fig. 10.1.*** *Front panel LEDs*

The NetGuardian-16S's front panel LEDs indicate communication and alarm reporting status. LED status messages are described below in Table 10.A.

| LED | Status | Description |
|---|---|---|
| Craft 1 | Blink Green | Transmit over upper craft port |
| | Blink Red | Receive over upper craft port |
| Exp | Blink Green | Transmit to NetGuardian-16S Expansion |
| | Blink Red | Receive from NetGuardian-16S Expansion |
| Private | Blink Green | Transmit over Private Ethernet connection |
| | Blink Red | Receive over Private Ethernet connection |
| Public | Blink Green | Transmit over Public Ethernet connection |
| | Blink Red | Receive over Public Ethernet connection |
| Data Ports 1–16 | Blink Green | Transmit over indicated data port |
| | Blink Red | Receive over indicated data port |
| Craft 2 | Blink Green | Transmit over lower craft port |
| | Blink Red | Receive over lower craft port |
| ICom | Blink Green | Lower board transmit to upper board |
| | Blink Red | Upper board transmit to lower board |
| Modem | Blink Green | Transmit over modem |
| | Blink Red | Receive over modem |
| Config | Blink Green | Valid configuration |
| | Blink Red | Invalid configuration |
| Alarm | Blink Red | New COS alarm |
| | Solid Red | One or more standing alarms |
| BSU SM | Solid Red | BSU Standalone Mode active |
| | Off | BSU Standalone Mode disabled |
| DTMF | Blink Green | DTMF tone transmit for Voice Call Out |
| | Blink Red | Receiving DTMF tones from Voice Call Out user's phone |
| Voice | Solid Green | Voice Call Out voice playback active |
| | Off | Voice Call Out voice playback off |

***Table 10.A.*** *Front panel LED Status message descriptions*

# 11 Back Panel LEDs

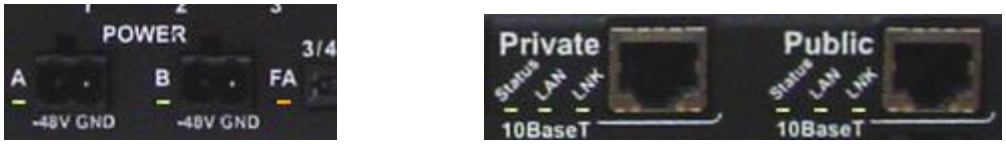



***Fig. 11.1.*** *Back panel LEDs for Power (left) and Ethernet connections*

The back panel LEDs indicate the status of power and Ethernet connections. LED status messages are described below in Table 11.A.

| | LED | Status | Description |
|---|---|---|---|
| **Power** | Power A | Solid Green | Correct polarity on power feed A |
| | | Solid Red | Reversed polarity on power feed A |
| | Power B | Solid Green | Correct polarity on power feed B |
| | | Solid Red | Reversed polarity on power feed B |
| | FA | Solid Red | Fuse failure |
| **Ethernet** | Status | Blink Green | Bus activity between LAN chip and processor |
| | LAN | Blink Green | Transmit and receive activity |
| | LNK | Solid Green | Ethernet link OK |

***Table 11.A.*** *Back panel LED Status message descriptions*

# 12 Connecting to the NetGuardian via Craft Port

***Fig. 12.1.1.*** *NetGuardian-16S's Top Craft Port*

The simplest way to connect to the NetGuardian-16S is over a physical cable connection between your PC's COM port and the NetGuardian-16S top craft port.

**Note:** You must be connected via the top craft port to use the TTY interface, but you don't have to be connected to a NetGuardian-16S unit to use Edit16S. You only need a connection to the unit to read or write configuration files to its NVRAM. You can use Edit16S on an unconnected PC to create and store NetGuardian-16S configuration files.

Use the DB9M-DB9F download cable provided with your NetGuardian-16S to make the top craft port connection.

**Select the following COM port options:**
• Bits per second: 9600
• Data bits: 8
• Parity: None
• Stop bits: 1
• Flow control: **None**

When a connection is established (sometimes accompanied by receipt of a hex byte), type `DPSCFG`, then press Enter to activate the configuration menu.

You can perform all configuration tasks via the craft port — but if you like, you can connect via the craft port just to configure the NetGuardian-16S's Private LAN IP address, and then do the rest of your configuration via a LAN connection.xt here.

# 13 TTY Interface

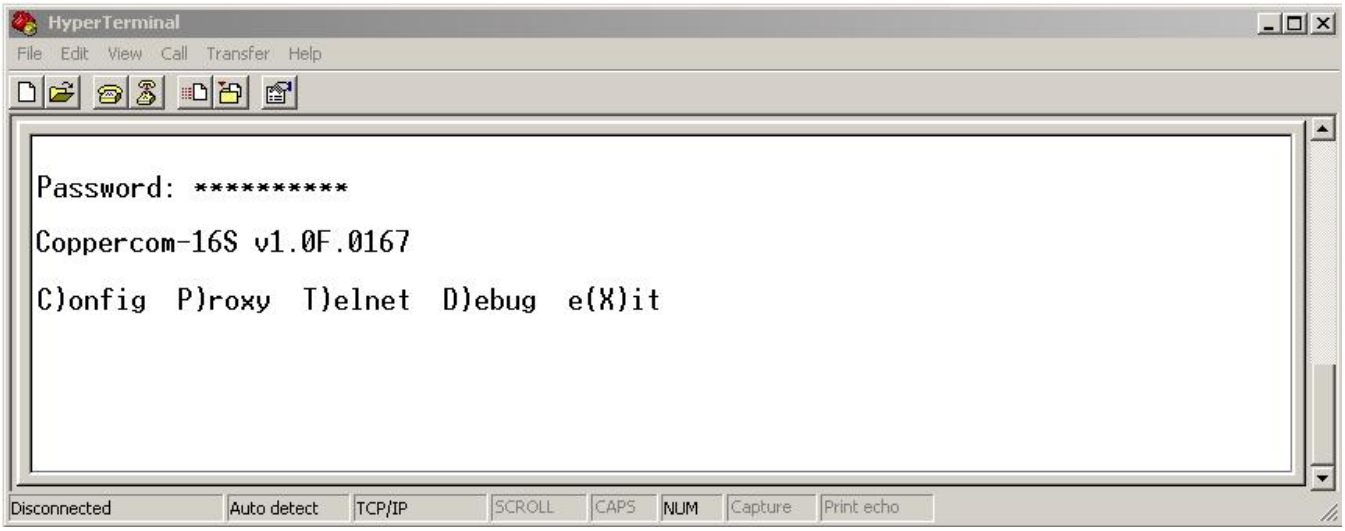



***Fig. 13.1.*** *The TTY interface initial configuration screen*

The TTY interface is the NetGuardian-16S's built-in controller for basic configuration and monitoring of the NetGuardian-16S. Configure the NetGuardian-16S's ethernet port settings, monitor the status of base and system alarms, operate control relays, view live ping targets , view debug or create proxy connections to other ports. For more advanced configuration tools, please use the Edit16S utility.

To use the TTY interface with the NetGuardian-16S, all you need is any PC with terminal emulation software (i.e. Hyperterminal) and a connection to the NetGuardian-16S. This connection can be a direct connection to the NetGuardian-16S's top front panel craft port or a remote connection via Telnet or dial-up.

Some initial software configuration must be performed before you can use a remote connection to the NetGuardian-16S. For Telnet, connect to the Net Guardian's IP address at port 2002 to access the configuration menus after initial LAN/WAN setup. **Telnet sessions are established at port 2002, not the standard Telnet port** as an added security measure.

The TTY interface is primarily used for configuring and provisioning the NetGuardian-16S, but you can also use it to ping IP targets, view system statistics, and data port activity.

**NOTE:** The TTY default password is "dpstelecom".

**If you have physical access to the NetGuardian-16S,** the easiest thing to do is connect to the unit serially through the top craft port and then assign it an IP address. Then you can complete the rest of the unit configuration over a remote LAN connection, if you want. For instructions, see Section 12, "Connecting to the NetGuardian-16S via Craft Port."

**If you DON'T have physical access to the NetGuardian-16S,** you can make a LAN connection to the unit by temporarily changing your PC's IP address and subnet mask to match the NetGuardian-16S's factory default IP settings. Follow these steps:

1. Look up your PC's current IP address and subnet mask, and write this information down.

2. Reset your PC's IP address to **192.168.1.200**.

3. Reset your PC's subnet mask to **255.255.0.0**. You may have to reboot your PC to apply your changes.

4. Once the IP address and subnet mask of your computer coincide with the NetGuardian's, you can access the NetGuardian-16S via a Telnet session or via Web browser by using the NetGuardian-16S's default IP address of **192.168.1.100**.

5. Provision the NetGuardian-16S with the appropriate information, then change your computer's IP address and subnet mask back to their original settings.

# 13.1 Menu Shortcut Keys

The letters before or enclosed in parentheses ( ) are menu shortcut keys. Press the shortcut key to access that option. Pressing the ESC key will always bring you back to the previous level. Entries are not case sensitive.

# 13.2 Unit Configuration

## 13.2.1 Ethernet Port Setup

The NetGuardian-16S must be assigned an IP address before you will be able to connect via LAN/WAN using a Telnet client or a Web browser. To connect via LAN, the minimum configuration requires setup of the IP address and subnet mask. Minimum WAN configuration requires that the default gateway be set as well. Follow the instructions below to configure the NetGuardian-16S's IP address, subnet mask and default gateway.

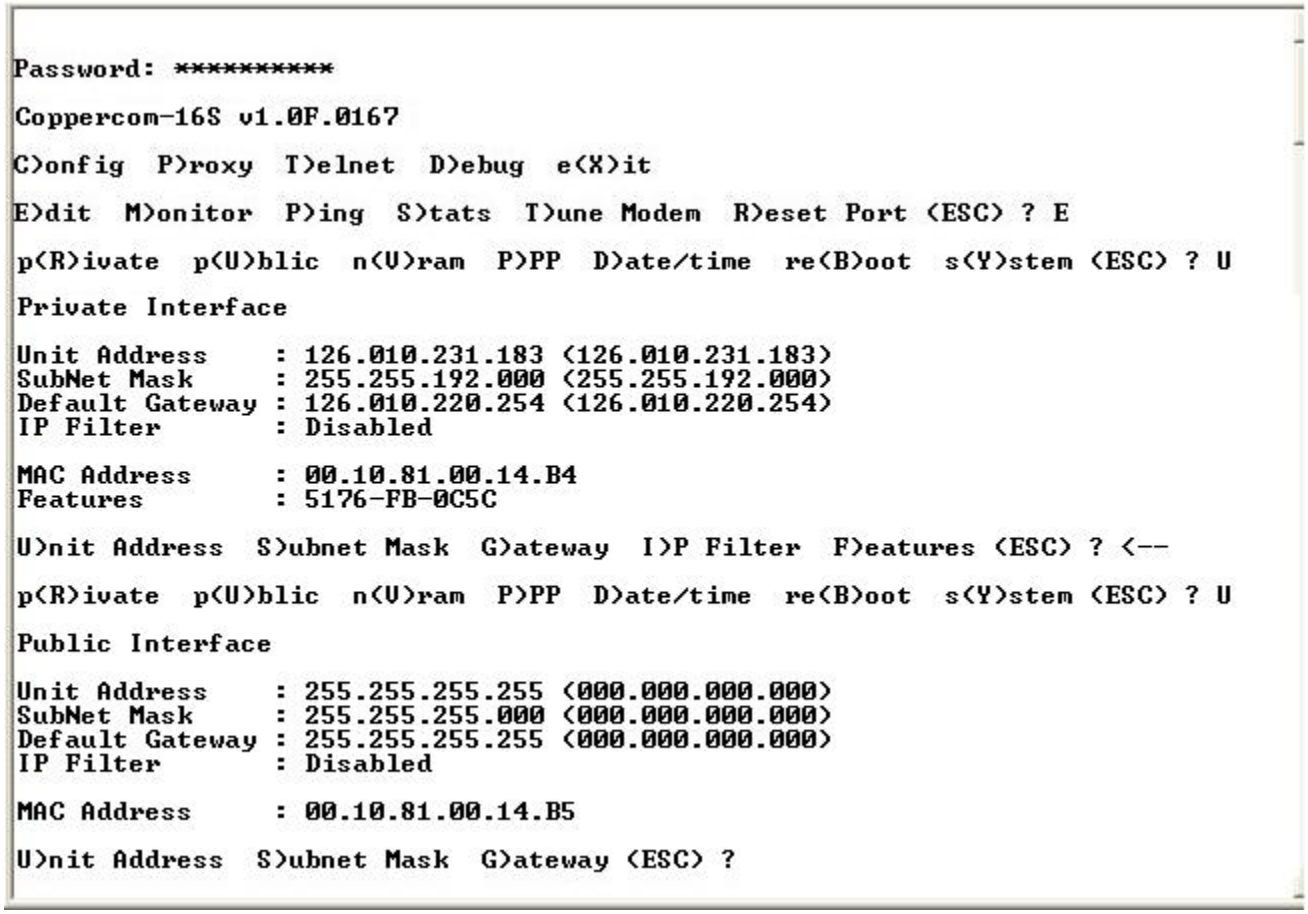

Password: **********
Coppercom-16S v1.0F.0167
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? E
p(R)ivate p(U)blic n(V)ram P)PP D)ate/time re(B)oot s(Y)stem (ESC) ? U
Private Interface
Unit Address : 126.010.231.183 (126.010.231.183)
SubNet Mask : 255.255.192.000 (255.255.192.000)
Default Gateway : 126.010.220.254 (126.010.220.254)
IP Filter : Disabled
MAC Address : 00.10.81.00.14.B4
Features : 5176-FB-0C5C
U)nit Address S)ubnet Mask G)ateway I)P Filter F)eatures (ESC) ? <--
p(R)ivate p(U)blic n(V)ram P)PP D)ate/time re(B)oot s(Y)stem (ESC) ? U
Public Interface
Unit Address : 255.255.255.255 (000.000.000.000)
SubNet Mask : 255.255.255.000 (000.000.000.000)
Default Gateway : 255.255.255.255 (000.000.000.000)
IP Filter : Disabled
MAC Address : 00.10.81.00.14.B5
U)nit Address S)ubnet Mask G)ateway (ESC) ?

***Fig. 13.2.*** *Configure the Ethernet port parameters*

1. Once a connection is established, the NetGuardian-16S will respond with "Password."
2. Type the default password, "dpstelecom," then press Enter.

   Note: DPS strongly recommends changing the default password.
3. The NetGuardian-16S's main menu will appear.
4. Type C for the C)onfig menu.
5. Type E for E)dit menu.
6. Type E for port settings.
7. Type R for Private settings, or type U for Public settings.
8. Configure the unit address, subnet mask, and default gateway.
9. ESC to the main menu.
10. When asked if you would like to save changes, type Y (yes).
11. Reboot to save the new configuration to the NetGuardian-16S.
12. Now you can connect to the NetGuardian-16S via LAN and complete the configuration.

## 13.2.2 Edit PPP Port

Choose P)PP to edit your PPP port in TTY Interface. You can choose a baud rate, depending on what device has been chosen for the PPP port.

```
C)onfig  P)roxy  T)elnet  D)ebug  e(X)it

E)dit  M)onitor  P)ing  S)tats  T)une Modem  R)eset Port (ESC) ? E

E)thernet  n(V)ram  P)PP  R)eboot  s(Y)stem (ESC) ? P

Configuration
    Port        : Data1
    Baud        : 9600
    Compression : Yes

Client
    Mode        : onDemand
    Phone       :
    Username    :
    Password    :

Server
    Server      : Disabled
    Address     : 255.255.255.255 (Client Specified)

P)ort  B)aud  mo(D)em  C)ompression  M)ode
  p(H)one  U)sername  pass(W)ord  S)erver  A)ddress  B)aud  mo(D)em (ESC) ?
```

***Fig. 13.2.2.1*** *Edit your PPP port*

If you are using a modem for the PPP port, then choose mo(D)em for the modem option to define the modem initialization strings (see Figure 10.4).

Choose B)aud to define the baud rate for that port. (See Figure 13.2.2.2.)

```
Client
    Mode        : onDemand
    Phone       :
    Username    :
    Password    :

Server
    Server      : Disabled
    Address     : 255.255.255.255 (Client Specified)

P)ort  B)aud  mo(D)em  C)ompression  M)ode
  p(H)one  U)sername  pass(W)ord  S)erver  A)ddress  B)aud  mo(D)em (ESC) ? B

3)00  6)00  1)200  2)400  4)800  9)600  a)19200  b)38400 (ESC) ?
```

***Fig. 13.2.2.2.*** *Select the baud rate for your PPP port*

# 13.3 Monitoring

## 13.3.1 Monitoring the NetGuardian

Connect a PC running VT100 terminal emulation software to the craft port or connect via LAN using a Telnet client with VT100 emulation to port 2002 to reach the monitor menu selection. This section allows you to do full system monitoring of the NetGuardian-16S including: all alarms, ping information, relays, analogs, and system status.

```
C)onfig  P)roxy  T)elnet  D)ebug  e(X)it

E)dit  M)onitor  P)ing  S)tats  T)une Modem  R)eset Port (ESC) ? M

A)larms  R)elays  E)vent log  P)ing targets  p(O)rts  S)ystem (ESC)
  B)AC  P)ing targets  p(O)rts  S)ystem (ESC) ?
```

***Fig. 13.3.1.1.*** *The monitor menu allows status checking on all elements*

### 13.3.1.1 Monitoring Base Alarms

View the status of the device connected to the discrete alarms from the M)onitor menu > A)larms option. Under `Status`, the word `Alarm` will appear if an alarm has been activated and `Clear` will appear if an alarm condition is not present. If groups are used the user defined status will be displayed.

```
A)larms  R)elays  E)vent log  P)ing targets  p(O)rts  S)ystem (ESC) ? A

B)ase  E)xpansions (ESC) ? B

 ID Description                                        Status
  1                                                   Clear
  2                                                   Clear
  3                                                   Clear
  4                                                   Clear
  5                                                   Clear
  6                                                   Clear
  7                                                   Clear
  8                                                   Clear
  9                                                   Clear
 10                                                   Clear
 11                                                   Clear
 12                                                   Clear
 13                                                   Clear
 14                                                   Clear
 15                                                   Clear
 16                                                   Clear
ESC to exit  Any key to continue
```

***Fig. 13.3.1.1.1.*** *This example shows page two of the discrete alarms*

### 13.3.1.2 Monitoring Ping Targets

View the status of all your ping targets from the M)onitor menu > P)ing targets option. This screen displays the ping target ID, description, and IP address. Under `Status` the word `Alarm` will appear if an alarm has been activated and `Clear` will appear if an alarm condition is not present.

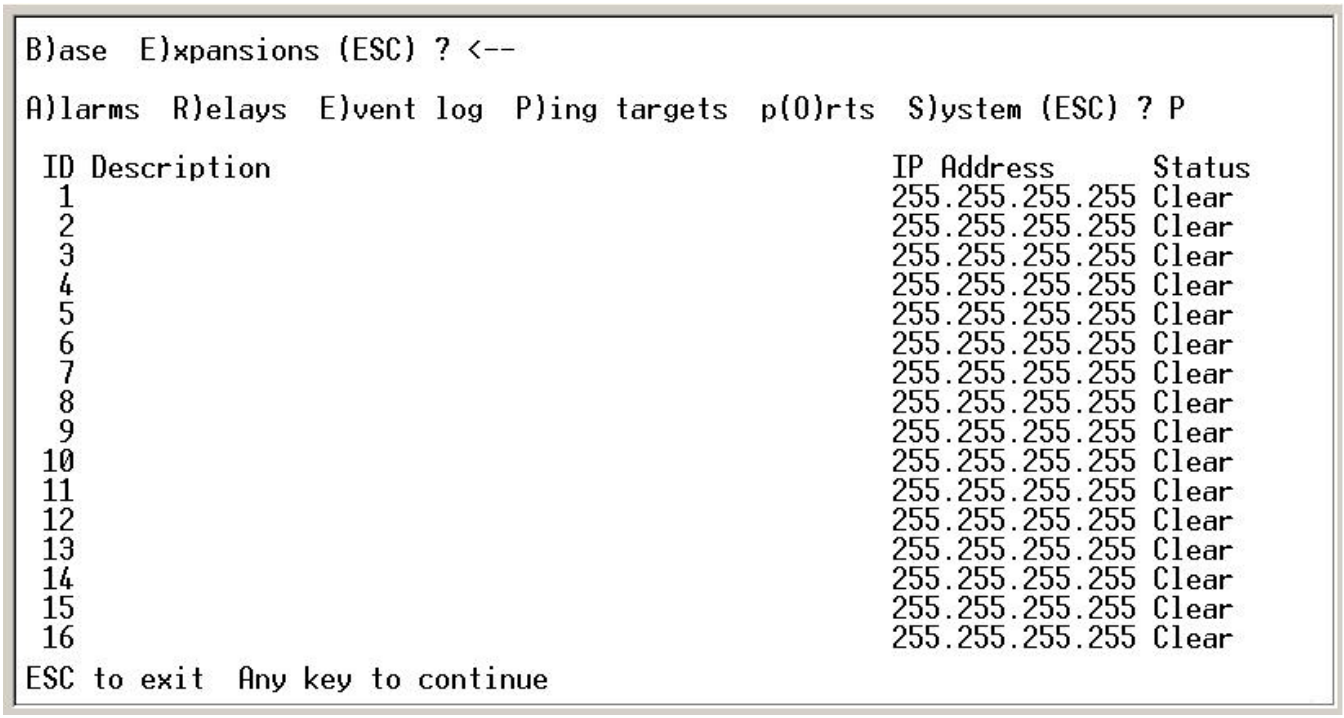



***Fig. 13.3.1.2.1.*** *The Ping info submenu allows you to change ping targets*

### 13.3.1.3 Monitoring and Operating Relays (Controls)

The NetGuardian-16S comes equipped with 8 relays that can be used to control external devices. Monitor the status of your relays from the M)onitor menu > R)elays option.

Relays are set to normally open (N/O) as the factory default, but each or all of them can be changed to normally closed (N/C) by changing their respective jumper (see Section 6.12, "Jumper Options").

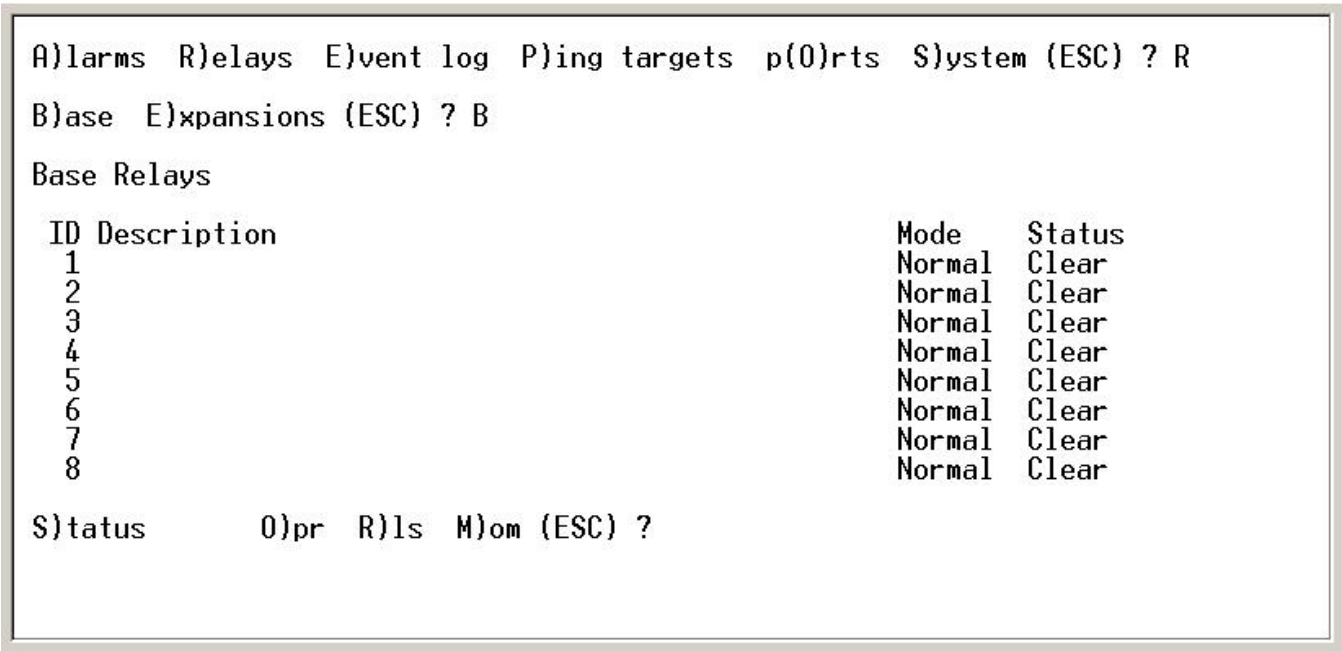

A)larms R)elays E)vent log P)ing targets p(O)rts S)ystem (ESC) ? R
B)ase E)xpansions (ESC) ? B
Base Relays
ID Description Mode Status
1 Normal Clear
2 Normal Clear
3 Normal Clear
4 Normal Clear
5 Normal Clear
6 Normal Clear
7 Normal Clear
8 Normal Clear
S)tatus O)pr R)ls M)om (ESC) ?

***Fig. 13.3.1.3.1*** *The eight relays can be operated from this screen*

***Caution:*** Relays are normally controlled by the Coppercom Controller

### 13.3.1.4 Monitoring System Alarms

View the status of the NetGuardian-16S's system alarms from the M)onitor menu > S)ystem option. Under `Status`, the word `Alarm` will appear if an alarm has been activated and `Clear` will appear if an alarm condition is not present. See Appendix, "System Alarm Descriptions," for more information. If groups are used the user defined status will be displayed.

```
A)larms  R)elays  E)vent log  P)ing targets  p(O)rts  S)ystem (ESC) ? S

 ID Description                    Status
  9 Modem not Responding           Clear
 10 No Dialtone                    Clear
 11 Pager Que Overflow             Clear
 12 Pager Notify Failed            Clear
 13 Callout Notify Failed          Clear
 33 Unit Reset                     Clear
 34 Lost Provisioning              Clear
 35 Intra-communication Fail       Clear
 36 Private LAN not Active         Clear
 37 Public LAN not Active          Clear
 38 Duplicate Private IPA          Clear
 39 Duplicate Public IPA           Clear
 40 DCP Poller Inactive            Clear
 41 DCP Event Que Full             Clear
 42 SNMP Trap not Sent             Clear
 43 Network Time Server            Clear

ESC to exit  Any key to continue
```

***Fig. 13.3.1.5.1.*** *System Alarms can be viewed from the M)onitor menu > S)ystem option*

### 13.3.1.5 Monitoring Data Port Activity

View the status of the NetGuardian-16S's 16 data ports from the M)onitor menu > p(O)rts option. Enter the number of the port you wish to view and press Enter.

The NetGuardian-16S provides an ASCII description under `Transmit` and `Receive`. Choose a) Transmit to view data transmitted to another device. Choose b) Receive to view data received from another device. See Appendix, "ASCII Conversion," for specific ASCII symbol conversion.

```
Data Port Stats/Info:

   Port   HW_Ovr  Que_Ovr    rx_In/rxOut   tx_In/txOut
     1       1        0      2BE7h/2559h   0000h/0000h
     2       0        0      0000h/0000h   0000h/0000h
     3       0        0      0000h/0000h   0000h/0000h
     4       0        0      0000h/0000h   0000h/0000h
     5       0        0      0000h/0000h   0000h/0000h
     6       0        0      0000h/0000h   0000h/0000h
     7       0        0      0000h/0000h   0000h/0000h
     8       0        0      0000h/0000h   0000h/0000h
     9       0        0      0000h/0000h   0000h/0000h
    10       0        0      0000h/0000h   0000h/0000h
    11       0        0      0000h/0000h   0000h/0000h
    12       0        0      0000h/0000h   0000h/0000h
    13       0        0      0000h/0000h   0000h/0000h
    14       0        0      0000h/0000h   0000h/0000h
    15       0        0      0000h/0000h   0000h/0000h
    16       0        0      0000h/0000h   0000h/0000h

Data Port ID (1-16): 1

a)Transmit  b)Receive  c)Transmit-HEX  d)Receive-HEX (ESC) ?
```

***Fig. 13.3.1.6.1.*** *Data port activity can be viewed from the M)onitor menu > p(O)rts option*

## 13.3.2 Viewing Live Target Pings

Choose P)ing to ping any of the NetGuardian-16S's user defined IP addresses. Then enter the ID number (1-32) of the IP address or enter any IP address to ping.

***Fig. 13.3.2.1.*** *Continuously ping an IP address that has been defined in the NetGuardian-16S's ping table*

## 13.3.3 Proxy Menu

You can create proxy connections to reach-through to the craft port, modem port or any of the other eight serial ports from the P)roxy menu. You'll be able to monitor and control additional devices via proxy connection to the NetGuardian-16S. Data presented and handshaking will be specified by the connected device.

To cancel the proxy connection wait a half second, then quickly type @@@ and press ENTER.

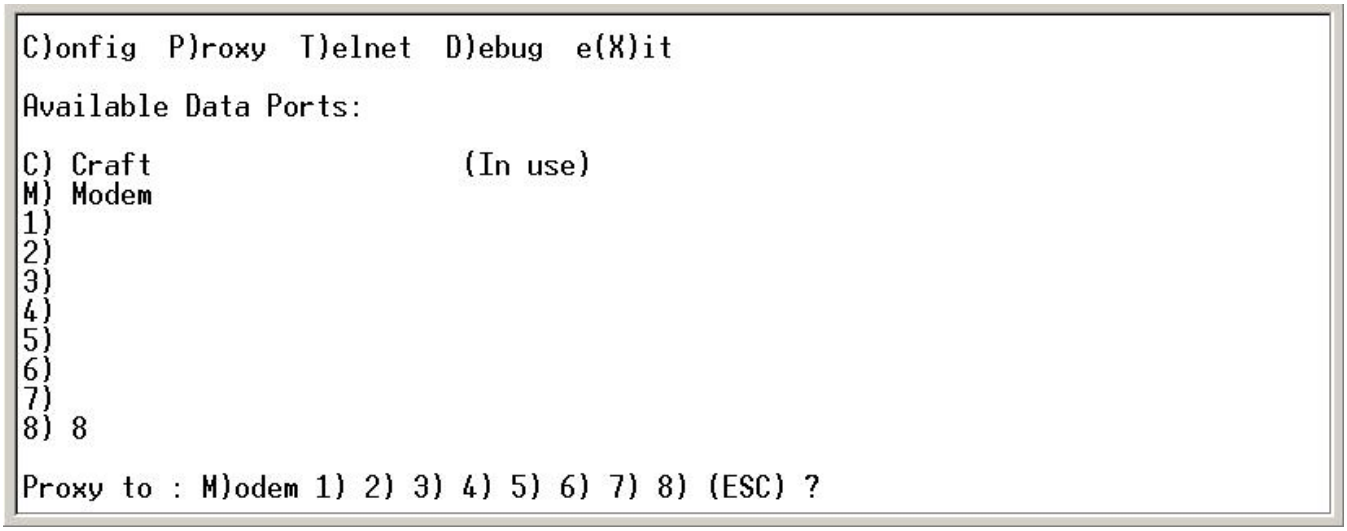



***Fig. 13.3.3.1.*** *Access devices connected to the eight data ports on the back panel through M)onitor menu > P)roxy option*

***Note:*** An issue has been identified when you attempt to access a IPM's PTMC (and modify PTMC parameters) via the NetGuardian-16S which prevents these PTMC parameters from being changed. To avoid this from happening, the terminal program must be configured to send CR+LF for "new-lines". Depending on the terminal software in use, the actual configuration steps may vary but the steps identified for Tera Term Pro are:

Under "**Setup**" select "**Terminal**" and set "**New-line**", "**Transmit:**" to "**CR+LF**".

Please make a note of this when accessing PTMC configurations via the NetGuardian-16S (newer installations). Also note that this configuration change should only be used when accessing the PTMC console function. When accessing other console ports, keep the standard CR only configuration.

## 13.3.4 Event Logging

Choose E)vent log to view the up to 100 events posted to the NetGuardian-16S; including power up, base and system alarms, ping alarms, analog alarms, and controls. Posted events for the various alarms include both alarm and clear status. Refer to Table 13.3.4.A for event log field descriptions.

**Note:** All information in the event log will be erased upon reboot or a power failure.

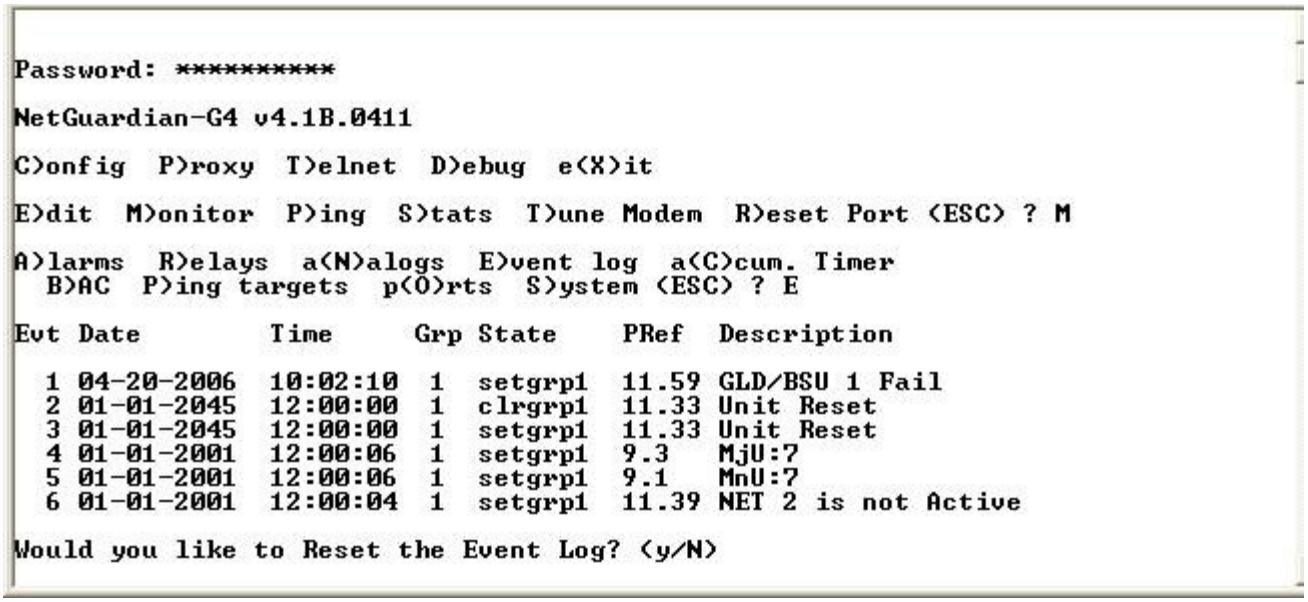

Password: **********
NetGuardian-G4 v4.1B.0411
C)onfig P)roxy T)elnet D)ebug e(X)it
E)dit M)onitor P)ing S)tats T)une Modem R)eset Port (ESC) ? M
A)larms R)elays a(N)alogs E)vent log a(C)cum. Timer
B)AC P)ing targets p(O)rts S)ystem (ESC) ? E
Evt Date Time Grp State PRef Description
1 04-20-2006 10:02:10 1 setgrp1 11.59 GLD/BSU 1 Fail
2 01-01-2045 12:00:00 1 clrgrp1 11.33 Unit Reset
3 01-01-2045 12:00:00 1 setgrp1 11.33 Unit Reset
4 01-01-2001 12:00:06 1 setgrp1 9.3 MjU:7
5 01-01-2001 12:00:06 1 setgrp1 9.1 MnU:7
6 01-01-2001 12:00:04 1 setgrp1 11.39 NET 2 is not Active
Would you like to Reset the Event Log? (y/N)

***Fig. 13.3.4.1.*** *Monitor the last 100 events recorded by the NetGuardian-16S from the M)onitor menu > E)vent log option*

| Event Log Field | Description |
|---|---|
| Evt | Event number (1–100) |
| Date | Date the event occurred |
| Time | Time the event occurred |
| Grp | Alarm Group |
| State | State of the event (A=alarm, C=clear) |
| PRef | Point reference (See Appendix A for display descriptions). |
| Description | User defined description of the event as entered in the alarm point and relay description fields. |

***Table 13.3.4.A.*** *Event Log field descriptions*

## 13.3.5 Backing Up NetGuardian Configuration Data via FTP

1. From the Start menu on your PC, select RUN.

2. Type "ftp" followed by the IP address of the NetGuardian-16S you are backing up (e.g. ftp 126.10.120.199).

3. After the connection is made press Enter.

4. Enter the password of the NetGuardian-16S (default password is dpstelecom), then press Enter.

5. Type "binary" and press Enter (necessary for NetGuardian-16S file transfer).

6. Type "lcd" and press Enter (this allows you to change the directory of your local machine).

7. Type "get" followed by the name you wish to define for the NetGuardian-16S backup file. Add the extension ".ngd" to the file name (e.g. get ngdbkup.ngd) and press Enter.

8. After reloading, type "bye" and press Enter to exit.

**Note:** The backup file name can have a maximum of eight characters before the file extension.

#### 13.3.5.1 Reloading NetGuardian Configuration Data

1. From the Start menu on your PC, select RUN.

2. Type "ftp" followed by the IP address of the NetGuardian-16S you are backing up (e.g. ftp 126.10.120.199).

3. After the connection is made press Enter.

4. Enter the password of the NetGuardian-16S (default password is dpstelecom), then press ENTER.

5. Type "binary" and press Enter (necessary for NetGuardian-16S file transfer).

6. Type "lcd" and press Enter (this allows you to change the directory of your local machine).

7. Type "put" followed by the name you defined for the NetGuardian-16S backup file and press Enter (e.g. put ngdbkup.ngd).

8. Type "literal REBT" to reboot the NetGuardian-16S.

9. After reloading, type "bye" and press Enter to exit.

## 13.3.6 Debug Input and Filter Options

| Debug Input Options | |
|---|---|
| ESC | Exit Debug |
| B | Show BAC status points |
| T | Show task status |
| U | Show DUART information |
| R | Show network routing table |
| X | Clear debug enable bitmap. Turn all debug filters OFF |
| ? | Display Options |
| **Debug Filter Options:** | |
| a | (1) Alarm toggle switch. Shows posting of alarm data |
| A | (2) Analog toggle switch. Shows TTY interface debug |
| c | (3) Config toggle switch. Shows TTY interface debug |
| C | (4) Control relay toggle switch. Shows relay operation |
| d | (5) DCP responder toggle switch. Shows DCP protocol |
| D | (6) Device toggle switch. Shows telnet, proxy information and Edit16S serial communication. |
| e | (7) Expansion poller toggle switch. Shows NGDdx polling |
| E | (8) ECU Interrogator toggle switch. Shows BAC processing |
| f | (9) FTP Command toggle switch. Shows command string parsing |
| F | (10) FTP Data toggle switch. Shows FTP Read / Write |
| G | (11) GLD poller toggle switch. Shows GLD polling |
| h | (12) HTML debug switch. Shows Web Browser processing |
| H | (13) HWACS debug switch. Shows hardware access operation |
| i | (14) PING toggle switch |
| k | (15) Socket toggle switch. Shows current dcu resources |
| l | (16) LED toggle switch. Shows current LED state |
| L | (17) LCD display toggle switch. Shows LCD control and text |
| m | (18) Modem toggle switch. Shows modem vectored initialization |
| M | (19) Undefined |
| o | (20) Osstart toggle switch. Miscellaneous application debug, including NVRAM read and write operation, and event posting |
| O | (21) Undefined |
| p | (22) SPORT toggle switch. Port init debug and channeled port debug |
| P | (23) PPP toggle switch. Shows PPP functioning |
| q | (24) QAccess toggle switch. Reserved for future use |
| Q | (25) Undefined |
| r | (26) Report toggle switch. Shows reporting event activity, including SNMP, pagers, email, etc. Also shows PPP negotiation for NG client PPP mode. |
| s | (27) SNMP toggle switch. Reserved for future use |
| S | (28) STAK toggle switch. Shows network processing and IPA of arp requests. Also shows packets discarded by Filter IPA. |
| t | (29) TERM toggle switch. Shows UDP/TCP port handling. The camera and network time (NTP) jobs also use the TERM toggle switch |
| V | (30) Undefined |
| w | (31) HTTP toggle switch. Shows handling of web browser packets |
| W | (32) WEB toggle switch 2. Dump HTML text from web browser |

***Table. 13.3.A.*** *Debut Input and Filter Options*

# 14 Web Browser Interface

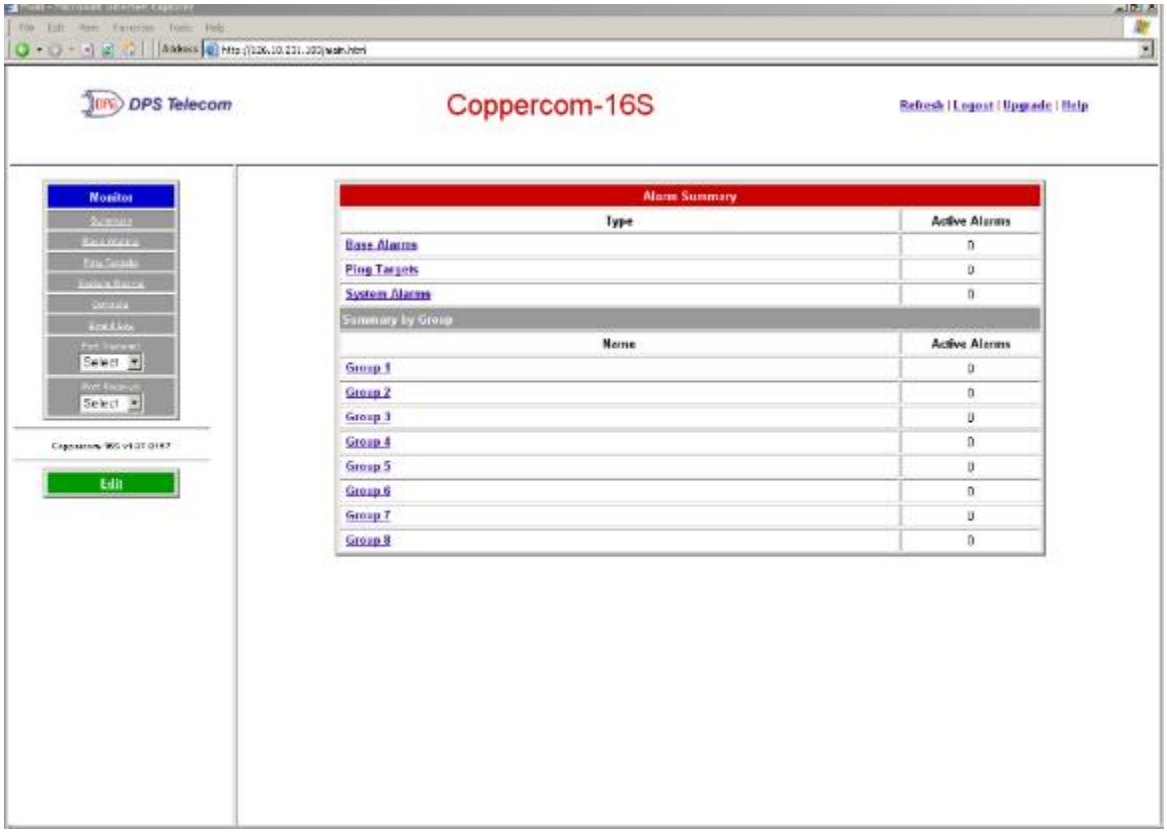



***Fig 14.1.*** *The NetGuardian-16S Web Browser Interface*

The NetGuardian-16S's Web Browser Interface lets you connect to the unit and view alarms from any computer. Using the Web Browser Interface, you can view alarms, operate controls, and provision user-configurable settings.

## 14.1 Logging On to the Web Browser Interface

***Fig. 14.1.1.*** *NetGuardian-16S Web Browser logon*

To log on to the Web Browser Interface, enter the NetGuardian-16S unit's IP address in the address bar of your Web browser. When you first connect to the NetGuardian-16S, you will see the logon page shown in Figure 12.1.1, above. Enter your password and click **submit**.

Your system administrator should have already assigned the NetGuardian-16S an IP address and a logon

password. If you do not know the IP address and password for your NetGuardian-16S unit, check with your system administrator.
No more than four users can simultaneously log on to the Web Browser Interface. Each user session is tracked by IP address, and the NetGuardian-16S will automatically log out users after 12 minutes of inactivity, unless the system administrator has configured a different timeout duration.

## 14.2 Logging Out of the Web Browser Interface

***Fig. 14.2.1.*** *Web Browser interface Logout link*

To log out of a Web Browser Interface session, click the **Logout** link in the top frame of your Web browser. The Logout link is always available while you're using the Web Browser Interface. It's a good idea to log out before closing your browser window. Exiting the Web Browser Interface without logging out can deny other users access to the Edit menu. (See Section 12.3, "Monitor and Edit Menus," for more information.)

## 14.3 Other Top Frame Links

The top frame of the Web Browser Interface has three other links that are always available:

**Refresh:** Refreshes the browser window.

**Upgrade:** Opens a new browser window containing the firmware upgrade download page on the DPS Telecom website.

**Help:** Opens a new browser window containing Web-based help for the NetGuardian-16S Web Browser Interface.

# 14.4 Monitor and Edit Menus

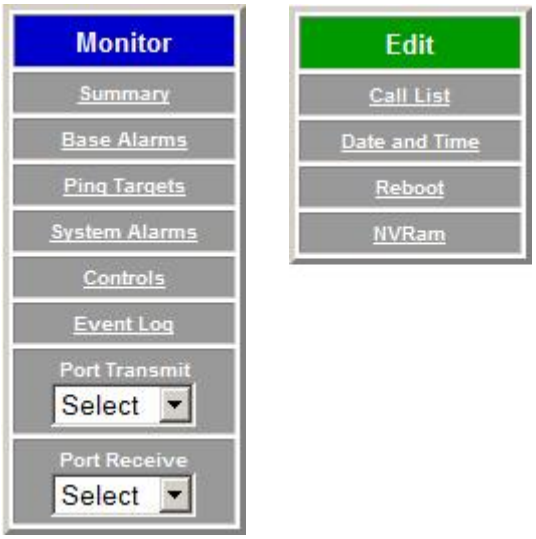



***Fig. 14.3.1.*** *Monitor and Edit menus*

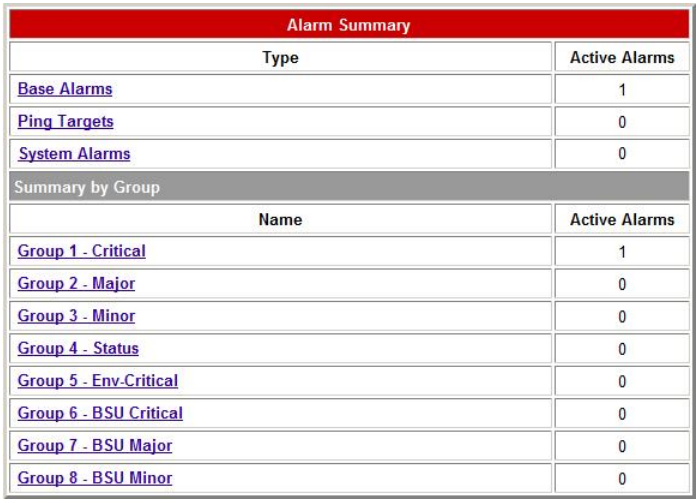
After logging on, you will see the Alarm Summary page shown in Figure 12.1 on page 24. Note the Monitor and Edit menus in the left frame of your browser. The Monitor menu provides links to pages that present current alarm monitoring data. The Edit menu (which can be expanded by clicking the **Edit** link) provides links to pages that provide options for configuring the NetGuardian-16S.

Clicking the **Edit** link expands the Edit menu and collapses the Monitor menu to button size. To switch back to the Monitor menu, click the **Monitor** link.

If the Edit menu does not appear in the left frame after logging on, it means that another user has already logged on as the primary user. Only the primary user (the first user to log on) can use the Edit menu. If the primary user exits the Web Browser Interface without logging out, other users cannot access the Edit menu.

# 14.5 Monitor Menu

## 14.5.1 Alarm Summary



| Alarm Summary | |
|---|---|
| Type | Active Alarms |
| Base Alarms | 1 |
| Ping Targets | 0 |
| System Alarms | 0 |
| Summary by Group | |
| Name | Active Alarms |
| Group 1 - Critical | 1 |
| Group 2 - Major | 0 |
| Group 3 - Minor | 0 |
| Group 4 - Status | 0 |
| Group 5 - Env-Critical | 0 |
| Group 6 - BSU Critical | 0 |
| Group 7 - BSU Major | 0 |
| Group 8 - BSU Minor | 0 |

***Fig. 14.5.1.1.*** *Alarm Summary page*

When you first log on to the Web Browser Interface, you'll see the Alarm Summary (Fig 12.5.1.1, above) in the main frame of your browser. The Alarm Summary provides an at-a-glance view of all NetGuardian-16S alarms.

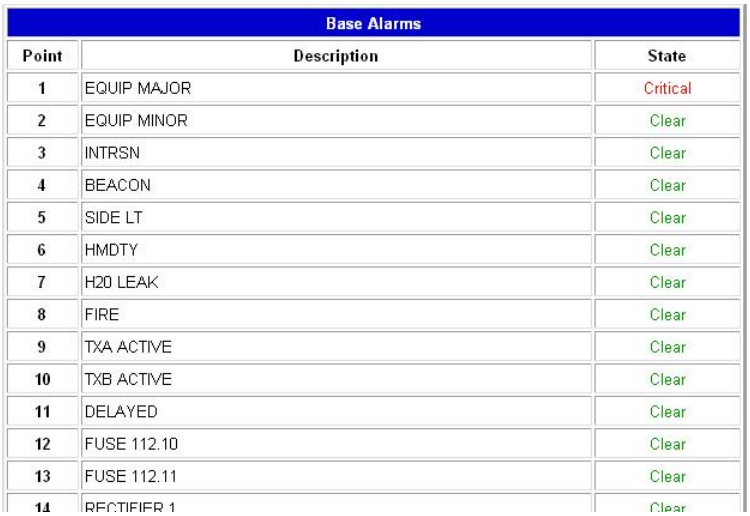
The Alarm Summary lists alarms in two categories, Summary by Type and Summary by Group.

The Summary by Type lists alarms by their origin: Base Alarms (discrete alarms), Ping Targets, Analogs (not supported on all NetGuardian-16S models) and System Alarms. Clicking a Type link will take you to the alarm list page for that alarm type. (For details, see Sections 12.5.2–12.5.4, "Base Alarms," "Ping Targets" and "System Alarms."

The Summary by Group lists alarms according to the logical Alarm Point Group they have been assigned by the system administrator. Clicking a Group link will take you to the Event Log page. (For details, see Section 12.6, "Event Log.")

Note that the same alarm may appear twice in the Alarm Summary. In the example in Figure 12.5.1.1, the same discrete alarm appears in the Base Alarms summary and the Group 1-Critical summary.

## 14.5.2 Base Alarms



Base Alarms

| Point | Description | State |
|---|---|---|
| 1 | EQUIP MAJOR | Critical |
| 2 | EQUIP MINOR | Clear |
| 3 | INTRSN | Clear |
| 4 | BEACON | Clear |
| 5 | SIDE LT | Clear |
| 6 | HMDTY | Clear |
| 7 | H20 LEAK | Clear |
| 8 | FIRE | Clear |
| 9 | TXA ACTIVE | Clear |
| 10 | TXB ACTIVE | Clear |
| 11 | DELAYED | Clear |
| 12 | FUSE 112.10 | Clear |
| 13 | FUSE 112.11 | Clear |
| 14 | RECTIFIER 1 | Clear |

***Fig. 14.5.2.1.*** *Base Alarm summary*

Clicking the **Base Alarms** link in the Monitor menu opens the Base Alarm page (see Figure 12.5.2.1, above). This page shows the Alarm or Clear status of each of the NetGuardian-16S's 32 discrete alarms. You'll probably have to scroll down the page to view all 32 discrete alarms.

The Base Alarms page lists each discrete alarm by its point number and the alarm description configured by the system administrator. The State column will display "Clear" in **GREEN** if the alarm is inactive and "Alarm" in **RED** if the alarm is active. If the system administrator has assigned an Alarm Point Group to the alarm point, the Group name will appear in **RED** in the State column when the alarm is active. In Figure 12.5.2.1, above, Alarm Point 1, "EQUIP MAJOR," has been assigned to the "Critical" Group.

## 14.5.3 Ping Targets

Ping Targets

| Point | Description | State |
|---|---|---|
| 1 | WEB SERVER | Clear |
| 2 | MAIL SERVER | Clear |
| 3 | ROUTER G49 | Clear |
| 4 | ROUTER G48 | Clear |
| 5 | ROUTER G47 | Clear |

***Fig. 14.5.3.1.*** *Ping Targets summary*

Clicking the **Ping Targets** link in the Monitor menu opens the Ping Targets page (see Figure 12.5.3.1, above). This page shows the Alarm or Clear status of each of the NetGuardian-16S's 32 ping alarms. You'll probably have to scroll down the page to view all 32 ping alarms.

The NetGuardian-16S declares a ping alarm when a ping target (a server, router, or any other device on an IP network) does not respond to a ping request in a time interval configured by the system administrator.

The Ping Targets page lists each ping alarm by its point number and the alarm description configured by the system administrator. The State column will display "Clear" in **GREEN** if the alarm is inactive and "Alarm" in **RED** if the alarm is active. If the system administrator has assigned an Alarm Point Group to the alarm point, the Group name will appear in **RED** in the State column when the alarm is active.

## 14.5.4 System Alarms

| System Alarms | | |
|---|---|---|
| Point | Description | State |
| 9 | Modem not Responding | Clear |
| 10 | No Dialtone | Clear |
| 11 | Pager Que Overflow | Clear |
| 12 | Pager Notify Failed | Clear |
| 13 | Callout Notify Failed | Clear |
| 33 | Unit Reset | Clear |
| 34 | Lost Provisioning | Clear |
| 35 | Intra-communication Fail | Clear |
| 36 | Private LAN not Active | Alarm |
| 37 | Public LAN not Active | Clear |
| 38 | Duplicate Private IPA | Clear |
| 39 | Duplicate Public IPA | Clear |
| 40 | DCP Poller Inactive | Clear |
| 41 | DCP Event Que Full | Clear |
| 42 | SNMP Trap not Sent | Alarm |
| 43 | Network Time Server | Clear |
| 44 | BSU Standalone Mode | Clear |
| 45 | Serial Rcv Overflow | Clear |
| 46 | Serial Rcv Que Overflow | Clear |
| 47 | Timed Tick | Clear |

***Fig. 14.5.4.1.*** *System Alarms summary*

Clicking the **System Alarms** link in the Monitor menu opens the System Alarms page (see Figure 12.5.4.1, above). This page shows the Alarm or Clear status of each of the NetGuardian-16S's 26 internal housekeeping alarms. You'll probably have to scroll down the page to view all 26 system alarms.

For a full description of the NetGuardian-16S's system alarms, see Section 13.5, "System Alarm Descriptions," in the Reference section.

The System Alarms page lists each system alarm by its point number and alarm description. The State column will display "Clear" in **GREEN** if the alarm is inactive and "Alarm" in **RED** if the alarm is active.

## 14.5.5 Controls

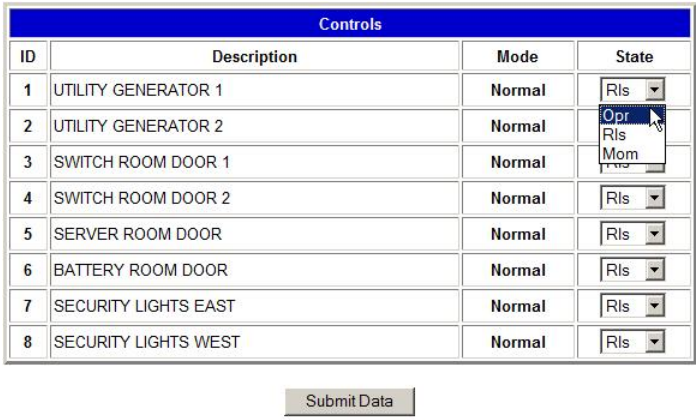



***Fig. 14.5.5.1.*** *Controls page*

Clicking the **Controls** link in the Monitor menu opens the Controls page (see Figure 12.5.5.1, above),. From this page you can operate the NetGuardian-16S's eight control relays.

The Controls page lists each control relay by its ID number and the description configured by the system administrator.

**To operate a control relay:**

1. Choose an operation from the relay's drop-down menu in the State column. For each relay, the choices are:

   - Opr (operate): Latch the relay
   - Rls (release): Unlatch the relay
   - Mom (momentary): Latch the relay for 600 msec

2. Click the **Submit Data** button to issue the control.

***Caution:*** Relays are normally controlled by the Coppercom Controller.

## 14.5.6 Event Log

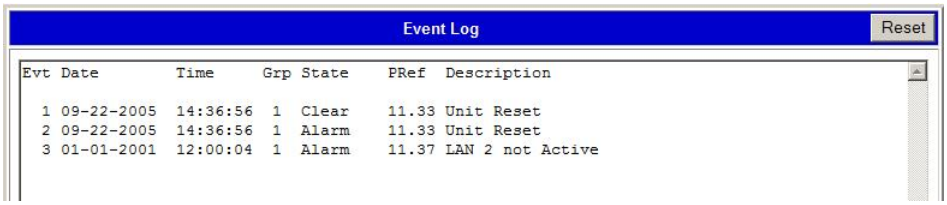

Event Log
Reset
Evt Date Time Grp State PRef Description
1 09-22-2005 14:36:56 1 Clear 11.33 Unit Reset
2 09-22-2005 14:36:56 1 Alarm 11.33 Unit Reset
3 01-01-2001 12:00:04 1 Alarm 11.37 LAN 2 not Active

***Fig. 14.5.6.1.*** *Event Log*

Clicking the **Event Log** link in the Monitor menu opens the Event Log page. The Event Log maintains a history of up to 100 events including reboots, base and system alarms, ping alarms,and controls. Posted events for the various alarms include both alarm and clear status.

| Event Log Field | Description |
|---|---|
| Evt | Event number (1–100) |
| Date | Date the event occurred |
| Time | Time the event occurred |
| St | State of the event (A=alarm, C=clear) |
| Pref | Point reference. See Reference section for display descriptions. |
| Description | Alarm or control relay description configured by system administrator |

***Table 14.5.6.A.*** *Event Log fields and descriptions*

Table 12.5.6.A., above, describes the information fields in the Event Log.

**To clear and reset the Event Log,** click the **Reset** button in the top right corner of the Event Log page.

**Note:** The Event Log is automatically cleared whenever the NetGuardian-16S reboots.

## 14.5.7 Port Transmit and Port Receive

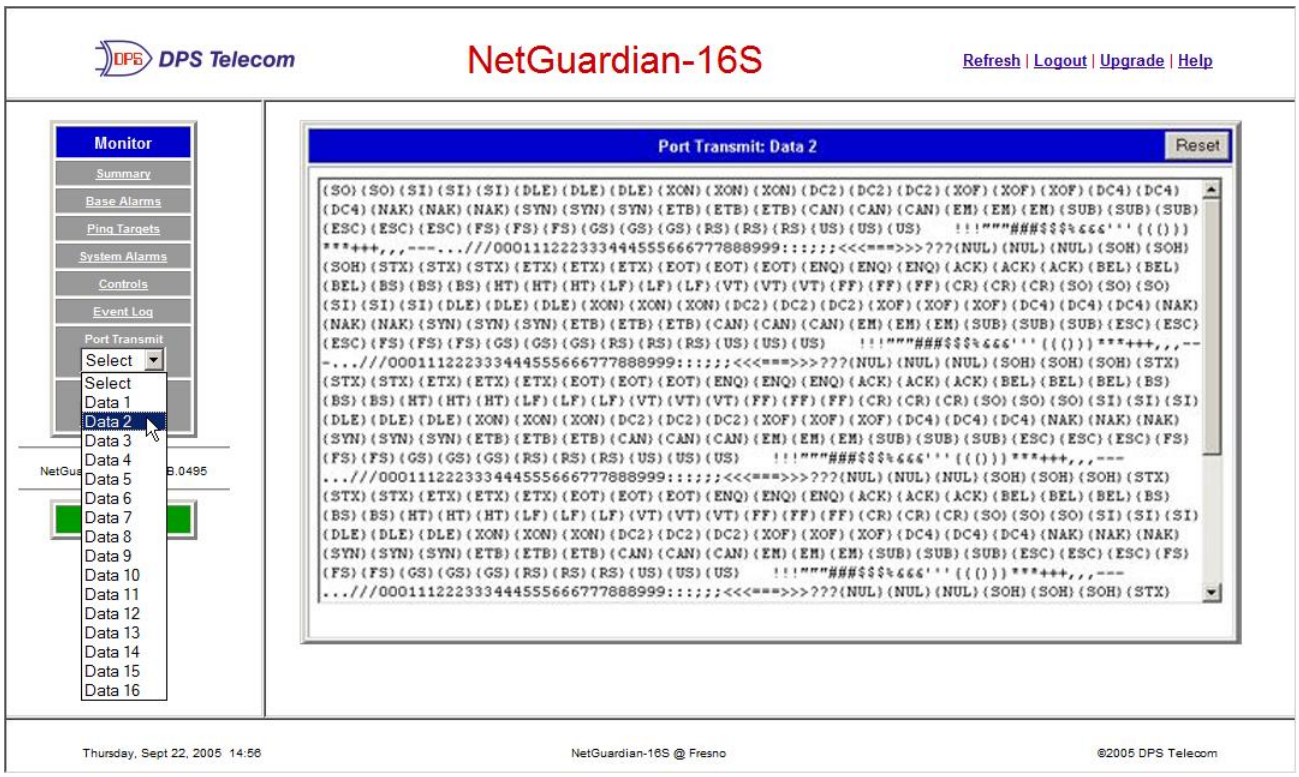



***Fig. 14.5.7.1.*** *Port Transmit page*

The **Port Transmit** and **Port Receive** pages display live data being transmitted or received over the NetGuardian-16S's 16 data ports. The port data traffic is displayed in ASCII symbols.

**To view transmit or receive port traffic,** select the data port you want to see from either the **Port Transmit** or **Port Receive** drop-down menus in the Monitor menu. (See Figure 12.5.7.1, above.)

**To clear and reset the display,** click the **Reset** button in the top right corner of the page.

For a descriptions of the ASCII symbols, see Section 13.6, "ASCII Symbol Descriptions," in the Reference section.

# 14.6 Edit Menu

## 14.6.1 Call List

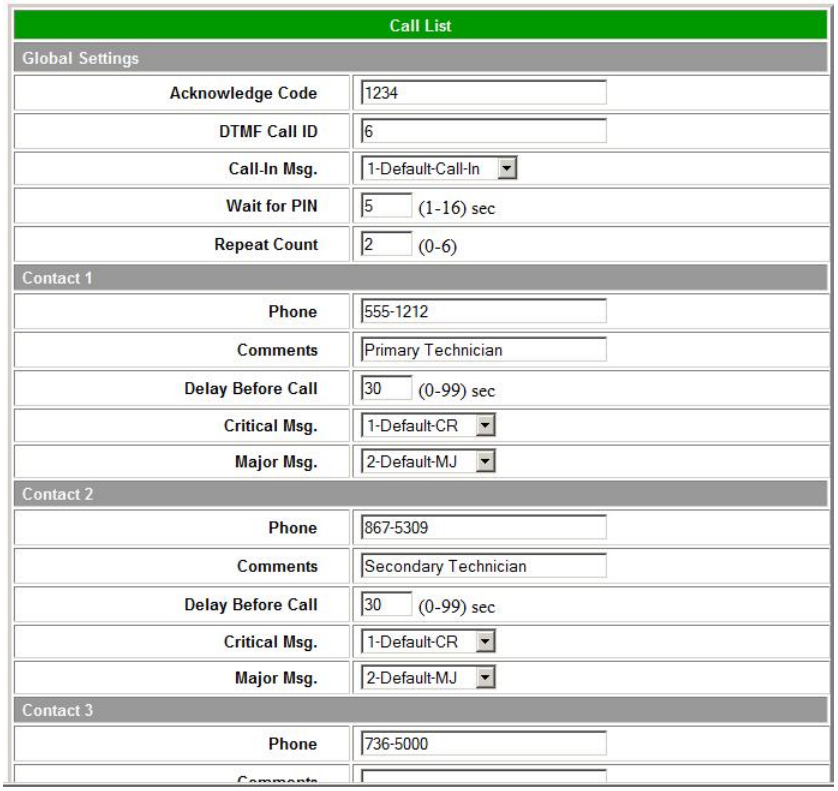



***Fig. 14.6.1.1.*** *Call List edit page*

Clicking the **Call List** in the Edit menu opens the Call List edit page (see Figure 12.6.1.1, above). On this page you can configure the Acknowledge Code and contacts for the Voice Call Out feature. (See Section 7, "Voice Call Out," for more information about this feature.)

- Up to 10 Voice Call Out Contacts can be defined.
- Each contact can receive Voice Call Out messages for Critical alarms, Major alarms, or both Critical and Major alarms.
- You have a choice of 16 different voice messages to assign to a contact for an alarm severity level.

**To define the Call List,** complete all fields for each contact you want to define, then scroll to the bottom of the Call List page and click the **Submit Data** button. Call List configuration fields are described in Table 12.6.1.A on page 34.

| Call List Field | Description |
|---|---|
| **Global Settings** | |
| Acknowledge Code | DTMF code entered by contact to acknowledge alarm |
| DTMF Call ID | ID number of pre-recorded voice message to be played at the start of the call to identify the NetGuardian-16S unit. |
| Call-in Msg. | Drop-down menu to select voice dialog heard by call-in users |
| Wait for PIN | Length of pause between message repetitions to allow user to enter Acknowledge Code (1–16 sec) |
| Repeat Count | Number of times NetGuardian-16S will repeat message |
| **Contact Settings** | |
| Phone | Contact's phone number |
| Comments | Optional contact description (30 character limit) |
| Delay Before Call | Incremental delay time from initial SNMP set or end of previous call before new call (0–99 sec) |
| Critical Msg. | Drop-down menu to select voice message for Critical alarms |
| Major Msg. | Drop-down menu to select voice message for Major alarms |

***Table 14.6.1.A.*** *Call List configuration fields*

## 14.6.2 Date and Time

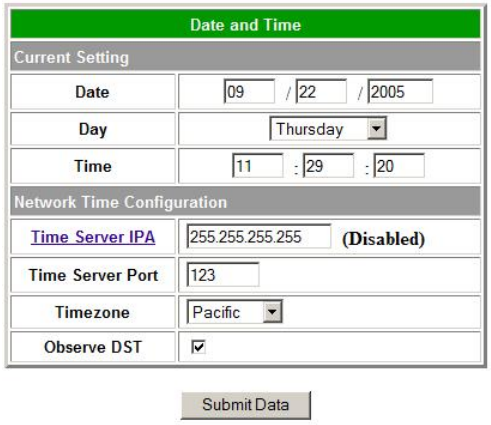



***Fig. 14.6.2.1.*** *Date and Time edit page*

Clicking the **Date and Time** link in the Edit menu opens the Date and Time edit page (see Figure 12.6.2.1, above). On this page you can reset the NetGuardian-16S's internal clock or configure the NetGuardian-16S to automatically set its clock to a Network Time Protocol Server.

**To set the NetGuardian-16S internal clock,** enter the current date, day of the week, and time in the Current Setting area. Note that the Date field uses U.S. MM/DD/YYYY format, and the Time field uses 24-hour time. After entering the correct time, click the **Submit Data** button to save your changes.

**To set the time automatically using Network Time Protocol,** enter the IP address and port of a network time server in the Network Time Configuration area. (For a list of network time servers, click the **Time Server IPA** link.) Select your time zone in the Time Zone drop-down menu, and check the Observe DST check box if you're currently observing daylight saving time. After making your selections, click the **Submit Data** button to save your changes.

## 14.6.3 Reboot

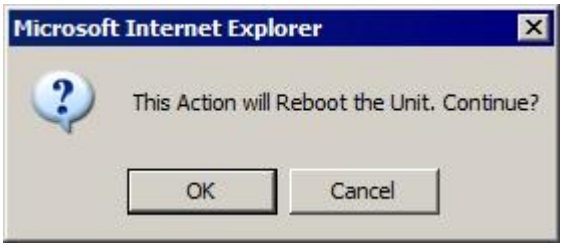
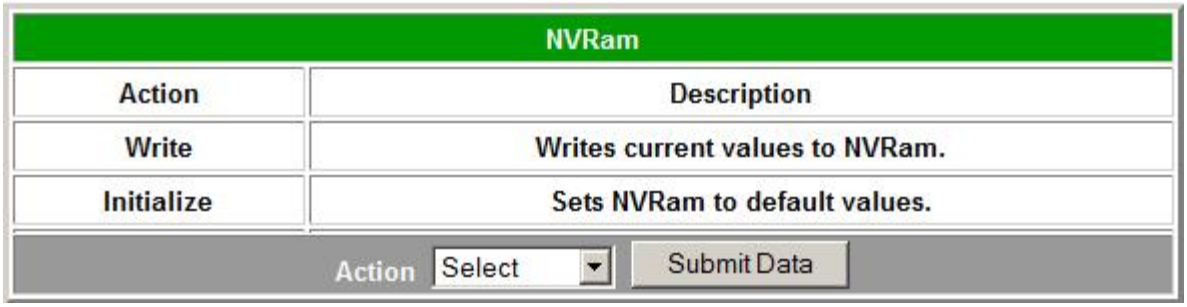



***Fig. 14.6.3.1.*** *Reboot command confirmation prompt*

Clicking the **Reboot** link in the Edit menu will reboot the NetGuardian-16S. A dialog box (see Figure 12.6.3.1) will ask you to confirm the Reboot command. Click **OK** to execute the reboot or click **Cancel**.

## 14.6.4 NVRam




Clicking the **NVRam** link in the Edit menu opens the NVRam page. On this page you can write your configuration changes to the NetGuardian-16S's internal memory, or you can reset the unit's memory to its default settings.

**Note:** If you're not a system administrator, your access privileges may not include rights to access this page.

The NetGuardian-16S stores its configuration data in nonvolatile RAM (NVRAM). The NVRAM will safely store all of the NetGuardian-16S's configuration data, even if the unit's power supply fails.

**To write your database changes to the NVRAM,** choose **Write** from the Action drop-down menu and click the **Submit Data** button.

**To initialize the NVRAM and erase all configuration data,** choose **Initialize** from the Action menu drop-down menu and click the **Submit Data** button.

# 15 Reference Section

## 15.1 NetGuardian-16S Alarm Map

| Description | Port | Address | Display | Points | SNMP Trap Numbers | |
|---|---|---|---|---|---|---|
| | | | | | Set | Clear |
| NetGuardian-16S Base Unit | | | | | | |
| Discrete Alarms | 99 | 1 | 1 | 1–32 | 8001–8032 | 9001–9032 |
| Ping Alarms | 99 | 1 | 2 | 1–32 | 8065–8096 | 8065–9096 |
| Control Relays | 99 | 1 | 11 | 1–8 | 8641–8648 | 9641–9648 |
| System Alarms 9–15 | 99 | 1 | 11 | 9–15 | 8649–8655 | 9649–9655 |
| System Alarms 33–50 | 99 | 1 | 11 | 33–50 | 8673–8690 | 9673–9690 |
| NetGuardian-16S Expansion #1 | | | | | | |
| Discrete Alarms | 99 | 1 | 12 | 1–48 | 6001–6064 | 7001–7064 |
| Control Relays | 99 | 1 | 13 | 1–8 | 6065–6072 | 7065–7072 |
| NetGuardian-16S Expansion #2 | | | | | | |
| Discrete Alarms | 99 | 1 | 14 | 1–48 | 6129–6177 | 7129–7177 |
| Control Relays | 99 | 1 | 15 | 1–8 | 6193–6200 | 7193–7200 |
| NetGuardian-16S Expansion #3 | | | | | | |
| Discrete Alarms | 99 | 1 | 16 | 1–48 | 6257–6305 | 7257–7305 |
| Control Relays | 99 | 1 | 17 | 1–8 | 6321–6328 | 7321–7328 |

***Table 15.1.A.*** *NetGuardian-16S alarm map*

## 15.2 System Alarm Descriptions

| Point | System Alarm | Description |
|---|---|---|
| 9 | Modem not Responding | Modem not responding to initialization string |
| 10 | No Dialtone | Dial tone not detected during dial-out attempt |
| 11 | Pager Que Overflow | Over 250 unsent events in pager queue |
| 12 | Pager Notify Failed | Attempted pager notification unsuccessful |
| 13 | Callout Que Overflow | Over 8 unsent calls in Voice Call Out queue |
| 14 | Callout Notify Failed | Attempted Voice Call Out unsuccessful |
| 15 | Exp. Module Callout | Alarm collected from Entry Control Unit (ECU) |
| 33 | Unit Reset | Toggles whenever unit reboots |
| 34 | Lost Provisioning | Unit using default configuration settings. NVRAM may be damaged |
| 35 | Intra-communication Fail | Communications failure between the NetGuardian-16S's two circuit boards |
| 36 | Private LAN not Active | Ethernet link not detected on Private port |
| 37 | Public LAN not Active | Ethernet link not detected on Public port |
| 38 | Duplicate Private IPA | Unit detects another node with same IP address as the Private port |
| 39 | Duplicate Public IPA | Unit detects another node with same IP address as the Public port |
| 40 | DCP Poller Inactive | Unit has not received poll from T/Mon for longer than DCP Timer period set by system administrator |
| 41 | DCP Event Que Full | More than 500 uncollected events in DCP event queue |
| 42 | SNMP Trap not Sent | SNMP trap address is not defined and an SNMP Trap event occurred |
| 43 | Network Time Server | Communication to network time server failure |
| 44 | BSU Standalone Mode | Communication with CopperController failure and BSU enters Standalone Mode. |
| 45 | Serial Rcv Overflow | UART hardware overflowed during receive |
| 46 | Serial Rcv Que Full | Alarm set when any data port is filled with more than 16K of information |
| 47 | Timed Tick | Toggles state at constant rate set by Timed Tick period configured by system administrator |
| 48 | Channel Port Timeout | Channel port has not forwarded any traffic for longer than Channel Port Timeout period set by system administrator |
| 49 | Craft Port Timeout | Craft Timeout Timer has not been reset in the period set by system administrator |
| 50 | NGDdx Expansion Fail | Communication to NetGuardian-16S Expansion unit(s) failure |

***Table 15.5.A.*** *System alarm descriptions*

# 15.3 Voice Call Out Default Dialogs

## 15.3.1 Dialog 1: Default Critical

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

**"A Critical alarm exists. A Critical alarm exists. A Critical alarm exists."**

**"Enter PIN to acknowledge alarm."**

*(User enters Acknowledge Code followed by pound (#) to acknowledge alarm.)*

If **Wait for PIN** time elapses, and the user has not entered the code, then replay message.

If user enters incorrect code, then: **"Problem invalid acknowledgement code."**

If errors exceed repeat count, then: **"Thank you. Goodbye."**

If code correct then: **"Acknowledgement accepted. Thank you. Goodbye."**

## 15.3.2 Dialog 2: Default Major

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

**"A Major alarm exists. A Major alarm exists. A Major alarm exists."**

**"Enter PIN to acknowledge alarm."**

*(User enters Acknowledge Code followed by pound (#) to acknowledge alarm.)*

If **Wait for PIN** time elapses, and the user has not entered the code, then replay message.

If user enters incorrect code, then: **"Problem invalid acknowledgement code."**

If errors exceed repeat count, then: **"Thank you. Goodbye."**

If code correct then: **"Acknowledgement accepted. Thank you. Goodbye."**

### 15.3.3 Dialog 3: Default Secure Dial-In

**"Please enter password."**

*(User enters Acknowledge Code followed by pound (#) as user ID password.)*

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

If no alarms, then: **"No alarms exist. No alarms exist. No alarms exist."**

If Critical alarm, then: **"A Critical alarm exists. A Critical Alarm exists. A Critical Alarm exists."**

If Major alarm, then: **"A Major alarm exists. A Major Alarm exists. A Major Alarm exists."**

**"Thank you. Goodbye."**

### 15.3.4 Dialog 4: Critical GR-474

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

**"A Critical alarm exists. A Critical alarm exists. A Critical alarm exists."**

**BONG-BONG, BONG-BONG, BONG-BONG** *(Double-stroke "bong" every 1.5 seconds, 6 strokes total)*

**"Enter PIN to acknowledge alarm."**

*(User enters Acknowledge Code followed by pound (#) to acknowledge alarm.)*

If **Wait for PIN** time elapses, and the user has not entered the code, then replay message.

If user enters incorrect code, then: **"Problem invalid acknowledgement code."**

If errors exceed repeat count, then: **"Thank you. Goodbye."**

If code correct then: **"Acknowledgement accepted. Thank you. Goodbye."**

### 15.3.5 Dialog 5: Major GR-474

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

**"A Major alarm exists. A Major alarm exists. A Major alarm exists."**

**BONG, BONG, BONG** *(Single "bong" every 1.5 seconds, 3 strokes total)*

**"Enter PIN to acknowledge alarm."**

*(User enters Acknowledge Code followed by pound (#) to acknowledge alarm.)*

If **Wait for PIN** time elapses, and the user has not entered the code, then replay message.

If user enters incorrect code, then: **"Problem invalid acknowledgement code."**

If errors exceed repeat count, then: **"Thank you. Goodbye."**

If code correct then: **"Acknowledgement accepted. Thank you. Goodbye."**

### 15.3.6 Dialog 6: GR-474 Secure Dial-In

**"Please enter password."**

*(User enters Acknowledge Code followed by pound (#) as user ID password.)*

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

If no alarms, then: **"No alarms exist. No alarms exist. No alarms exist."**

If Critical alarm, then:

**"A Critical alarm exists. A Critical Alarm exists. A Critical Alarm exists."**

**BONG-BONG, BONG-BONG, BONG-BONG** *(Double-stroke "bong" every 1.5 seconds, 6 strokes total)*

If Major alarm, then:

**"A Major alarm exists. A Major Alarm exists. A Major Alarm exists."**

**BONG, BONG, BONG** *(Single "bong" every 1.5 seconds, 3 strokes total)*

**"Thank you. Goodbye."**

### 15.3.7 Dialog 7: Critical RUS-FORM-522

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

**"A Critical alarm exists. A Critical alarm exists. A Critical alarm exists."**

**"Enter PIN to acknowledge alarm."**

*(User enters Acknowledge Code followed by pound (#) to acknowledge alarm.)*

If **Wait for PIN** time elapses, and the user has not entered the code, then replay message.

If user enters incorrect code, then: **"Problem invalid acknowledgement code."**

If errors exceed repeat count, then: **"Thank you. Goodbye."**

If code correct then: **"Acknowledgement accepted. Thank you. Goodbye."**

### 15.3.8 Dialog 8: Major RUS-FORM-522

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

**"A Major alarm exists. A Major alarm exists. A Major alarm exists."**

**BUSY-BUSY-BUSY** *(Busy tone, 3 pulses; .5 seconds on and .5 seconds off)*

**"Enter PIN to acknowledge alarm."**

*(User enters Acknowledge Code followed by pound (#) to acknowledge alarm.)*

If **Wait for PIN** time elapses, and the user has not entered the code, then replay message.

If user enters incorrect code, then: **"Problem invalid acknowledgement code."**

If errors exceed repeat count, then: **"Thank you. Goodbye."**

If code correct then: **"Acknowledgement accepted. Thank you. Goodbye."**

### 15.3.9 Dialog 9: RUS-FORM-522 Secure Dial-In

**"Please enter password."**

*(User enters Acknowledge Code followed by pound (#) as user ID password.)*

**"Hello, this is telephone number <DTMF ID>."**

**"The time is <time> <A.M./P.M.>"**

If no alarms, then:

**"No alarms exist. No alarms exist. No alarms exist."**

**RING-RING, RING-RING, RING-RING...** (Continuous 2-ring ringback tone)

If Critical alarm, then:**"A Critical alarm exists. A Critical Alarm exists. A Critical Alarm exists."**

If Major alarm, then:

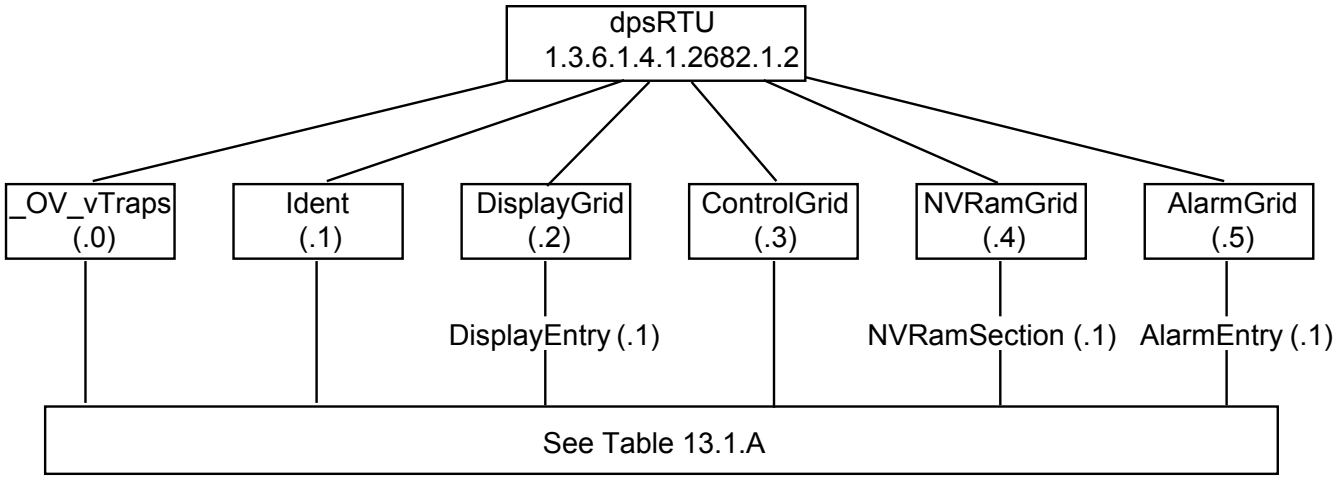
**"A Major alarm exists. A Major Alarm exists. A Major Alarm exists."**

**BUSY-BUSY-BUSY** *(Busy tone, 3 pulses; .5 seconds on and .5 seconds off)*

**"Thank you. Goodbye."**

# 15.4 NetGuardian-16S Trap OIDs

The illustration and tables below outline the SNMP OIDs for NetGuardian-16S alarm points. This illustration begins with dpsRTU; however, the MIB object identifier tree has several levels above that. The full English name is as follows: root.iso.org.dod.internet.private.enterprises.dps-Inc.dpsAlarmControl.dpsRTU. Therefore, dpsRTU's full object identifier is 1.3.6.1.4.1.2682.1.2. Each level beyond dpsRTU adds another object identifying number. For example, the object identifier of the Display portion of the Control Grid is 1.3.6.1.4.1.2682.1.2.3.3 because the object identifier of dpsRTU is 1.3.6.1.4.1.2682.1.2 + the Control Grid (.3) + the Display (.3).




| (O.)_OV_Traps points |
|---|
| **_OV_vTraps (1.3.6.1.4.1.2682.1.2.0)** |
| PointSet (.20) |
| PointClr (.21) |
| SumPSet (.101) |
| SumPClr (.102) |
| ComFailed (.103) |
| ComRestored (.014) |
| P0001Clr (.20001) through P0064Set (.10064) |
| P0001Clr (.20001) through P0064Clr (.20064) |

| (.1) Identity points |
|---|
| **Ident (1.3.6.1.4.1.2682.1.2.1)** |
| Manufacturer (.1) |
| Model (.2) |
| Firmware Version (.3) |
| DateTime (.4) |
| ResyncReq (.5)* |
| * Must be set to "1" to perform the resync request which will resend TRAPs for any standing alarm. |

| (.2) DisplayGrid points |
|---|
| **DisplayEntry (1.3.6.1.4.1.2682.1.2.2.1)** |
| Port (.1) |
| Address (.2) |
| Display (.3) |
| DispDesc (.4)* |
| PntMap (.5)* |

| (.3) ControlGrid points |
|---|
| **ControlGrid (1.3.6.1.4.1.2682.1.2.3)** |
| Port (.1) |
| Address (.2) |
| Display (.3) |
| Point (.4) |
| Action (.5) |

| (.4) NVRamSection points |
|---|
| **NVRamSection (1.3.6.1.4.2682.1.2.4.1)** |
| NVsNmbr (.1) |
| NvsData (.2) |
| NvsStatus (.3) |

| (.5) AlarmEntry points |
|---|
| **AlarmEntry (1.3.6.4.1.2682.1.2.5.1)** |
| Aport (.1) |
| AAddress (.2) |
| ADisplay (.3) |
| APoint (.4) |
| APntDesc (.5)* |
| AState (.6) |
| * For specific alarm points, see Table 13.1.A. |

***Table 20.3.A.*** *MIB object identifier tree descriptions*

## 15.5 SNMP Granular Trap Packets

| SNMP Header | Description |
|---|---|
| 0 | Version |
| Public | Request |
| Trap | Request |
| 1.3.6.1.4.1.2682.1.2 | Enterprise |
| 126.10.230.181 | Agent address |
| Enterprise Specific | Generic Trap |
| 8001 | Specific Trap |
| 617077 | Time stamp |
| 1.3.7.1.2.1.1.1.0 | Object |
| NetGuardian-16S | Value |
| 1.3.6.1.2.1.1.6.0 | Object |
| 1-800-622-3314 | Value |
| 1.3.6.1.4.1.2682.1.2.4.1.0 | Object |
| 01-02-1995 05:08:27.760 | Value |
| 1.3.6.1.4.1.2682.1.2.5.1.1.99.1.1.1 | Object |
| 99 | Value |
| 1.3.6.1.4.1.2682.1.2.5.1.2.99.1.1.1 | Object |
| 1 | Value |
| 1.3.6.1.4.1.2682.1.2.5.1.3.99.1.1.1 | Object |
| 1 | Value |
| 1.3.6.1.4.1.2682.1.2.5.1.4.99.1.1.1 | Object |
| 1 | Value |
| 1.3.6.1.4.1.2682.1.2.5.1.5.99.1.1.1 | Object |
| Rectifier Failure | Value |
| 1.3.6.1.4.1.2682.1.2.5.1.6.99.1.1.1 | Object |
| Alarm | Value |

***Table 12.3.A.*** *Example of SNMP headers and descriptions*

Table 12.3.A shows the information contained in the SNMP Trap packets sent by the NetGuardian-16S. The NetGuardian-16S sends a unique, granular Trap OID for each alarm point, and the Trap includes the user-configured alarm description in a variable binding value field.

There are two ways your SNMP manager can identify alarms from the NetGuardian-16S:

- Read the unique, granular Traps OID for each alarm
- Read the generic Trap OID for any NetGuardian-16S Trap (1.3.6.1.4.1.2682.1.2.5.1.2.99.1.1.1) and parse the variable binding for the alarm description.

# 15.6 ASCII Symbol Descriptions

| Abbreviation | Description | Abbreviation | Description |
|---|---|---|---|
| NUL | Null | DLE | Data Link Escape |
| SOH | Start of Heading | DC | Device Control |
| STX | Start of Text | NAK | Negative Acknowledge |
| ETX | End of Text | SYN | Synchronous Idle |
| EOT | End of Transmission | ETB | End of Transmission Block |
| ENQ | Enquiry | CAN | Cancel |
| ACK | Acknowledge | EM | End of Medium |
| BEL | Bell | SUB | Substitute |
| BS | Backspace | ESC | Escape |
| HT | Horizontal Tabulation | FS | File Separator |
| LF | Line Feed | GS | Group Separator |
| VT | Vertical Tabulation | RS | Record Separator |
| FF | Form Feed | US | Unit Separator |
| CR | Carriage Return | SP | Space (blank) |
| SO | Shift Out | DEL | Delete |
| SI | Shift In | BRK | Break Received |

***Table 13.6.A.*** *ASCII symbols*

Table 13.6.A lists all possible ASCII symbols displayed on the Port Transmit and Port Receive pages. (For more information about Port Transmit and Port Receive, see Section 12.5.7, "Port Transmit and Port Receive."

Some notes on the ASCII port display:

- Printable ASCII characters will appear as ASCII.
- Non-printable ASCII characters will appear as labels surrounded by { } brackets (for example, `{NUL}`).
- Non-ASCII characters will appear as hexadecimal surrounded by [ ] brackets (e.g. `[IF]`).
- A received BREAK will appear as `<BRK>`.

# 15.7 Modem Access

The TTY interface can also be accessed through the phone line, but before dial in access is granted the user must be set up as a modem user with Edit16S.

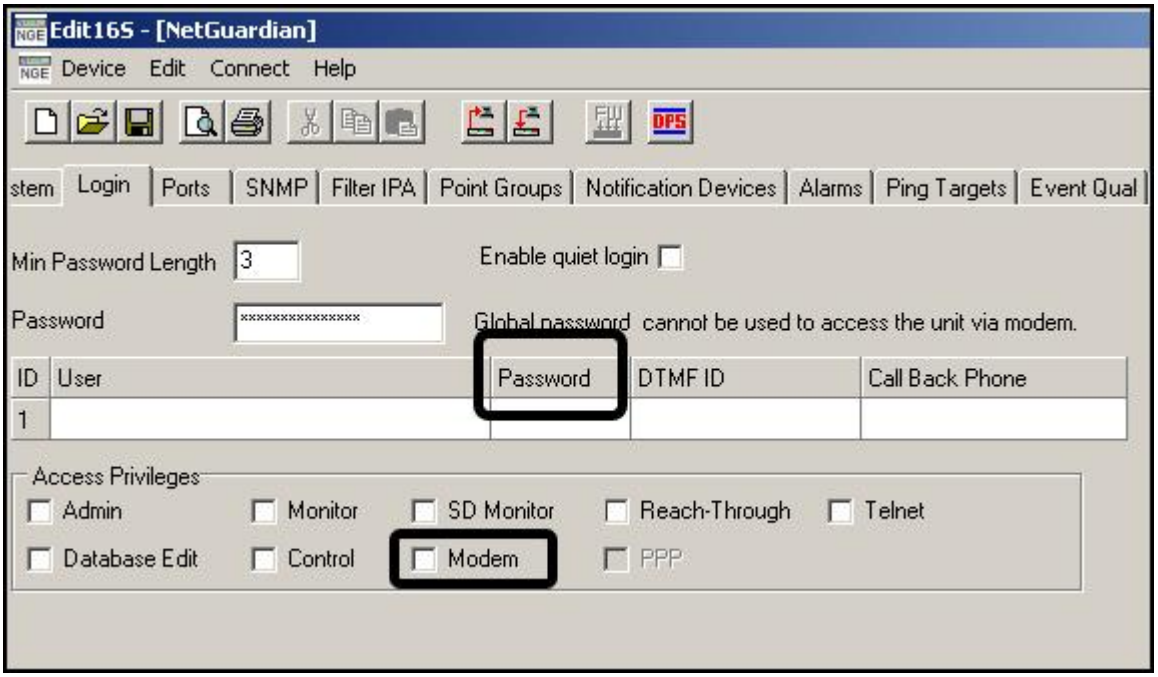

Edit16S - [NetGuardian]
Device Edit Connect Help
stem Login Ports SNMP Filter IPA Point Groups Notification Devices Alarms Ping Targets Event Qual
Min Password Length 3
Enable quiet login
Password
Global password cannot be used to access the unit via modem.
ID User Password DTMF ID Call Back Phone
1
Access Privileges
Admin Monitor SD Monitor Reach-Through Telnet
Database Edit Control Modem PPP

**Figure 12.7.1.1** Edit 16S Changes

Under the Login tab select the User that will need modem access and make sure that the modem check box at the bottom is checked. The password will also need to be set. Figure 12.7.1.1 shows a example of changes that need to be made.

When dialing in, priority is given to voice. The voice will timeout waiting for a DTMF ID and the modem should automatically establish a connection. Once a connection has been established, the user should see the standard TTY interface password prompt. Enter a valid password to access the TTY menus. For an attached null modem the following command would be sent to dial the unit:

ATDT<telephone number>

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   Please be at or near your equipment when you call DPS Telecom Technical Support. This will help us solve your problem more efficiently.

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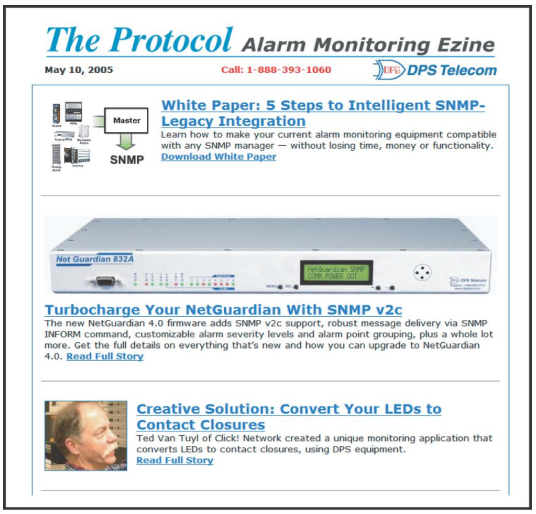
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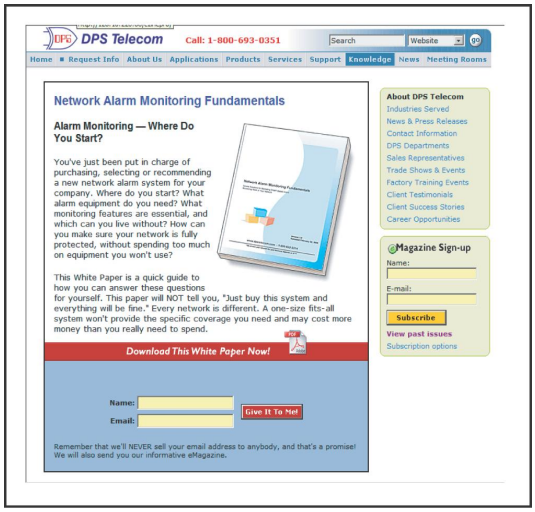
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